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ABSTRACT

The purpose of this report is to summarize the results of the National Assessment of Educational Progress Project's 1972-73 assessment of mathematics. Chapter 1 gives details concerning the sample and the data analysis procedures that were used. Each of the next six chapters focuses on results in one of the following major content areas: numbers and numeration, measurement geometry, variables and relationships, probability and statistics, and consumer mathematics. The final chapter provides summaries across content areas of results grouped by sex, race, region of the country, parental education, and size and type of community. Appendices contain significance charts by group for each major content area at each age level and data on the number of responses by group at each age. (DT)

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MATH TECHNICAL REPORT
SUMMARY VOLUME

U.S. DEPARTMENT OF HEALTH,
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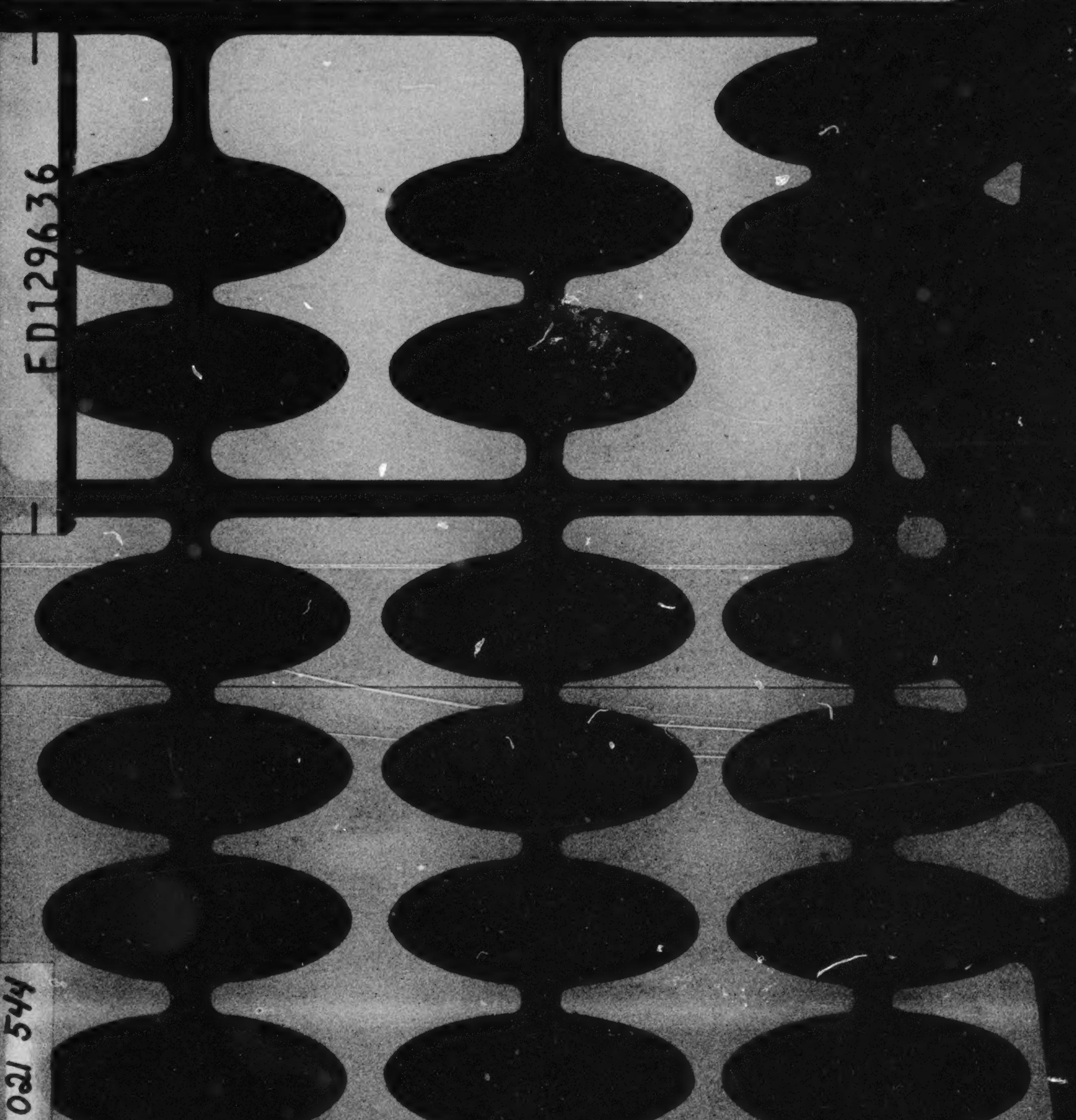

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NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS

A Project of the Education Commission of the States

Jerry Apodaca, Governor of New Mexico, Chairman, Education Commission of the States
Warren G. Hill, Executive Director, Education Commission of the States
Roy H. Forbes, Director, National Assessment

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NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS

MATHEMATICS TECHNICAL REPORT:

Summary Volume

Mathematics Report No. 04-MA-21

September 1976

NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS
Suite 700, 1860 Lincoln Street
Denver, Colorado 80203

Roy H. Forbes, Director

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FOREWORD

When the U.S. Office of Education was founded in 1867, one charge set before its commissioner was to determine the nation's progress in education. Only recently has that century-old charge been addressed in a systematic way. The work is being done by the National Assessment of Educational Progress (NAEP).

National Assessment is an information-gathering project that surveys the educational attainments of 9-year-olds, 13-year-olds, 17-year-olds (in and out of school) and young adults (ages 26—35) in 10 learning areas: art, career and occupational development, citizenship, literature, mathematics, music, reading, science, social studies and writing. At least one area is assessed every school year, and all areas are periodically reassessed in order to measure educational progress. Since 1969, National Assessment has gathered information about the levels of educational achievement across the country and reported its findings to the nation. During the first five years of its endeavors, NAEP had interviewed and tested more than 400,000 scientifically selected young Americans. Baseline data on the achievement levels of young Americans in eight learning areas — science, writing, citizenship, reading, literature, social studies, music and mathematics — have been collected and reported. In addition, two of the learning areas (science and writing) have been reassessed and the educational progress of young Americans in these two areas reported to the nation.

Each assessment is the product of several years' work by a great many educators, scholars and lay persons from all over the country. Initially, these people design the objectives for each learning area, proposing general goals that they feel Americans should be achieving in the course of their education. These goals are reviewed by more people, and when consensus is reached, they are passed along to test developers, whose task it is to create measurement tools appropriate to the objectives.

When the exercises prepared by the developers have passed extensive reviews by subject-matter specialists, measurement experts and concerned lay persons, they are administered to probability samples of various populations. The people who comprise those samples are selected in such a way that the results of their assessment can be generalized to the entire national population. That is, on the basis of the performance of 2,500 9-year-olds on a given exercise, it is possible to generalize about the probable performance of all 9-year-olds in the nation. Approximately 100,000 persons participate in the assessment each year.

After assessment data have been collected, scored and analyzed, National Assessment publishes reports to present the results as accurately as possible. Not all exercises are released for publication because NAEP will administer some of the exercises again in the future to determine whether the performance level of young Americans has improved or declined. Thus, it is essential that these exercises be kept secure in order to preserve the integrity of the study. If the unreleased exercises can be discussed without revealing their content, they are examined. However, the discussion is much less detailed than it is for the released exercises.

National Assessment also publishes a general information yearbook that describes all major aspects of the assessment process. This volume defines the categories by which results are reported and elaborates on the scientific procedures utilized. The reader who desires more detailed information about how National Assessment defines its groups, prepares and scores its exercises, designs its sample, and analyzes and reports its results should consult the *General Information Yearbook, Report 03/04-GIY*, which is available, as are all NAEP reports, through the Superintendent of Documents. U.S. Government Printing Office, Washington, D.C. 20402.

ACKNOWLEDGMENTS

Many people have made substantial contributions to the mathematics assessment, from the beginning of the National Assessment of Educational Progress (NAEP) in 1964 to this fourth report of findings in the area of mathematics. Unfortunately, it is not possible to acknowledge them all here, and an apology is due to those whose names have been omitted.

The original preparation of the objectives and exercises in the area of mathematics was handled by the Educational Testing Service and The Psychological Corporation. These materials were reviewed by dozens of consultants, including mathematicians, mathematics educators and interested lay persons, under the general monitoring of the National Assessment staff. Special mention must be made of three individuals and their contributions to the developmental phases: Emil Berger of the St. Paul (Minnesota) Public Schools for his assistance in finalizing the objectives and efforts in developing and field testing exercises; and Dale Foreman of the Council for REAL Education and Todd Rogers of the University of British Columbia (Vancouver), former NAEP staff members, for their efforts in developing the individually administered mathematics exercises.

The administration of the mathematics assessment was conducted by the Research Triangle Institute and the Measurement Research Center (MRC). Scoring and processing were carried out by MRC and by the National Assessment staff. Louise Diana of MRC and Fred Schippert of the Detroit (Michigan) Public Schools provided invaluable assistance in developing and refining the categories used to score the exercises. James Wilson of the University of Georgia (Athens) and Robert Reys of the University of Missouri (Columbia) were extremely helpful in suggesting analysis schemes.

The actual preparation of this report was a collaborative effort of the National Assessment staff. Special thanks must be given to the following people and departments: Hugh Cobb, James Damon and Eric Morgan, Data Processing Department; Ava Powell, Research Assistant, Analysis and Research Department; Marci Reser and Jessica Grant, Production Assistants, Publications Department; and Barbara Ward, who wrote the other NAEP mathematics assessment reports. Technical analysis for this report was planned and supervised by Wayne Martin.

Special thanks must also go to J. Stanley Ahmann, who directed the National Assessment program throughout the period in which this information was gathered and reported.

Roy H. Forbes
Project Director

INTRODUCTION

Preparation for the mathematics assessment began in the spring of 1965 with objectives development. The development of the mathematics objectives was a complicated process involving two contractors (the Educational Testing Service and The Psychological Corporation), a math education consultant (Dr. Emil Berger of the St. Paul [Minnesota] Public Schools), advisory panels comprised of mathematicians and mathematics educators and a panel of interested lay persons who reviewed the objectives for their suitability. Details of the development process are provided in the *Mathematics Objectives Booklet*, available from the National Assessment offices.

By the fall of 1968, the three-dimensional matrix that would serve as the basis for the mathematics objectives was completed. One dimension of the matrix was the *Use of Mathematics:* Social Mathematics (the mathematics needed for personal living and effective citizenship in our society), Technical Mathematics (the mathematics necessary for various skilled jobs and professions) and Academic Mathematics (the formally structured mathematics that provide the basis for an understanding of various isolated mathematical processes). Another dimension of the matrix was the 17 *Content Areas* defined for mathematics: number-and-numeration concepts, properties of numbers and operations, arithmetic computations, sets, estimation and measurement, exponents and logarithms, algebraic expressions, equations and inequalities, functions, probability and statistics, geometry, trigonometry, mathematical proof, logic, miscellaneous topics, business and consumer mathematics, and attitude and interest. The third dimension of the matrix was the 6 cognitive *Objectives or Abilities:* (1) to recall and/or recognize definitons, fact and symbols; (2) to perform mathematical manipulations; (3) to understand mathematical concepts and processes; (4) to solve mathematical problems — social, technical and academic; (5) to use mathematics and mathematical reasoning to analyze problem situations, define problems, formulate hypotheses, make decisions and verify results; and (6) to appreciate and use mathematics.

During exercise development and review, it became obvious that one dimension of the matrix or classification scheme — uses of mathematics — was highly judgmental and that reviewers could not agree upon classification of the exercises. It was decided at this point to use only a two-dimensional matrix — content areas by cognitive objectives or abilities. Despite repeated development efforts, the exercises designed to measure the content area of "attitude and interest" and the objective of "appreciation and use of mathematics" were considered to be inadequate. It was reluctantly agreed that this content area and objective would not be covered during the first assessment of mathematics, with the understanding that it would be developed and included in subsequent mathematics assessments. The six major content areas that were finally established for reporting purposes are: numbers and numeration (which includes number-and-numeration concepts, properties of numbers and operations, arithmetic computation and sets); measurement (which includes estimation and measurement and metric geometry); geometry; variables and relationships (which includes exponents, algebraic expressions, equations and inequalities, functions, trigonometry and mathematical logic); probability and statistics; and consumer mathematics.

After the exercises had undergone extensive reviews by mathematicians, mathematics educators and concerned lay persons, the exercises to be used in the assessment were selected and arranged in booklets with the science exercises. During the 1972–73 school year, science and mathematics were assessed. The 13-year-olds were assessed during [illegible]ber and November, the 9-year-olds during January and February and the in-school 17-year-olds during March and April. The out-of-school 17-year-olds (dropouts and early graduates) were assessed via the supplementary frame from May through July. The young adults were assessed from January through June. The exercises used to assess mathematics were not just the traditional multiple-choice, paper-and-pencil types of questions. The majority of the exercises were open-ended (free response) and required the respondent to supply the answer. In addition, respondents were to do all figuring or "scratch work" in the actual assessment booklets. The responses to the open-ended exercises plus any work the respondent did in the booklet were tabulated in various scoring categories. These categories revealed the percentages of people making particular types of errors and thus provided some diagnostic information about common mathematical errors. Responses that could not be placed in any of the error categories were placed in a category called "other unacceptable." Respondents were instructed to write the words "I don't know" on the answer line or to fill in the oval beside the "I-don't-know" choice for multiple-choice exercises if they felt that they did not know the answer to a particular exercise.

The majority of the assessment materials was administered to groups of 8 to 12 respondents at a time, using a paced audio tape to standardize administrations. However, some exercises were administered in a "one-to-one" interview situation in which the exercises were presented to the respondent bv the trained exercise administrator. These individually administered exercises were used to elicit responses that would be difficult to observe in a group situation, such as observing the process a respondent used to solve a problem. Although the out-of-school respondents were not assessed in group settings, the audio tape was used to standardize administrations; out-of-school respondents also received the individually administered packages.

Approximately one-half of the exercises used in the mathematics assessment have been released. These exercises have been included in various mathematics reports and made available to other users. The unreleased portion of the exercises are kept secure and will be used in the second assessment of mathematics (scheduled for the 1977–78 school year) to measure changes in the educational attainments of young Americans. The purpose of this report is to provide a statistical summary of the entire mathematics assessment. Thus, the results for both the released and unreleased exercises have been included in the summaries. For the reader who wishes a general overview of the results of the mathematics assessment, this is provided in *The First National Assessment of Mathematics: An Overview, Report 04-MA-00.*[1] For the reader who is interested in the specific text and results of the exercises summarized in this volume, detailed exercise-by-exercise documentation may be found in the *Mathematics Technical Report: Exercise Volume, Report 04-MA-20.* Data are provided for all of the mathematics exercises, but the exact text and scoring guides are only provided for the released exercises.

For those readers most interested in the computational abilities of young Americans, a special report, *Math Fundamentals: Selected Results From the First National Assessment of Mathematics, Report 04-MA-01,* would be particularly useful. Likewise, those readers who are interested in the area of consumer mathematics will find *Consumer Math: Selected Results From the First National Assessment of Mathematics, Report 04-MA-02* to be useful. In addition, the National Assessment of Educational Progress has produced computer data tapes containing respondent-level data for the released mathematics exercises. These data tapes are available[2] to any researcher who wishes to conduct further analysis of the mathematics data.

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[1] National Assessment reports can be ordered through the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Although National Assessment was not originally designed to interpret the assessment findings, it has worked closely with a panel of mathematics educators from the National Council of Teachers of Mathematics (NCTM) who addressed themselves to the implications of the assessment results. The NCTM panel (Dr. Thomas Carpenter, University of Wisconsin [Madison]; Dr. Terrence Coburn, Oakland Public Schools, Pontiac, Michigan; Dr. Robert Reys, University of Missouri [Columbia]; and Dr. James Wilson, University of Georgia [Athens]) presented its findings in the October 1975 issues of *The Arithmetic Teacher*[3] and *The Mathematics Teacher.*[4] For the reader who is interested in the implications of the assessment results for mathematics education, these articles serve as reference.

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[2] Data tapes are available, at a charge, through the Data Processing Dept., National Assessment of Educational Progress, Suite 700, 1860 Lincoln St., Denver, Colo. 80203.

[3] Thomas P. Carpenter et al., "Results and Implications of the NAEP Mathematics Assessment: Elementary School," *The Arithmetic Teacher*, 22, No. 6 (October 1975), pp. 438—50.

[4] Thomas P. Carpenter et al., "Results and Implications of the NAEP Mathematics Assessment: Secondary School," *The Mathematics Teacher*, 68, No. 6 (October 1975), pp. 453—70.

CHAPTER 1

THE MATHEMATICS ASSESSMENT

The purpose of this report is to summarize the results of the 1972—73 assessment of mathematics. The exercise-level results are summarized in the exhibits for various groups of people. The exhibits allow comparisons of the reporting groups within and across age levels and comparisons of performance on the major content areas of the mathematics assessment. These summary data can be used to identify the strengths and weaknesses of the various reporting groups and to determine how learning declines or improves with age. Sometimes, patterns will emerge that can form the basis for judgments and decisions about future directions for mathematics education and research.

As was explained in the Introduction, the mathematics exercises have been organized into six major content areas for reporting purposes. The following six areas will be used in this report:

1. Numbers and numeration.

2. Measurement.

3. Geometry.

4. Variables and relationships.

5. Probability and statistics.

6. Consumer mathematics.

The arrangement of these content areas is not meant to signify their relative importance or the order in which they should appear in a school curriculum. Concepts from all of the content areas are usually introduced at the elementary level and then reinforced and expanded as students mature. However, these content areas cover most of the topics included in general mathematics courses and allow for inclusion of those covered in more advanced courses. Each of the following chapters focuses on one of the major content areas. The final chapter provides summaries of group results across the content areas in order that the achievement of reporting groups may be easily traced across the areas.

The Sample

The probability-sample design[1] employed by the National Assessment of Educational Progress provides data on a national level. The sample was not designed to enable comparisons of the data to be made between states, school districts, schools, teachers and individual respondents. It consisted of approximately 2,500 to 2,600 respondents per group-administered package and 2,100 to 2,200 respondents per individually administered package. All told, approximately 25,000 9-year-olds, 30,000 13-year-olds and 33,000 17-year-olds participated in this assessment. Because young adults were allowed to take up to four assessment packages, their total sample size was approximately 4,500.

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[1] An overview of the National Assessment sampling design for assessment Years 03 and 04 (1971—72 and 1972—73) is provided in Chapter 2 of the *General Information Yearbook, Report 03/04-GIY* (Washington, D.C.: Government Printing Office, 1974). For more detailed documentation, see J.R. Chromy et al., *The National Assessment Approach to Sampling* (Denver, Colo.: Education Commission of the States, 1974).

The 9-year-olds, 13-year-olds and 87% of the 17-year-olds were selected through sampling schools; the young adults were selected through household sampling. The 17-year-olds not enrolled in school were identified both through the household sampling and a special supplementary sample designed to pick up high school dropouts and early graduates.

In addition to reporting national results for 9-year-olds, 13-year-olds, 17-year-olds and young adults, National Assessment provides results for various groups of people — specifically, both sexes, two races, four regions of the country, seven sizes-and-types of community and four levels of parental education. The reporting groups are defined as follows.

Sex

Results are presented for females (F) and males (M).

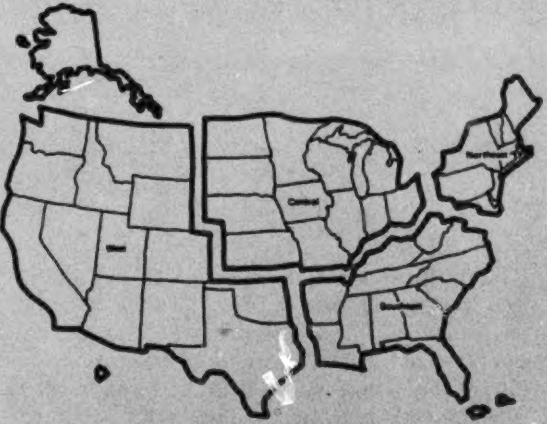
Race

Results are presented for blacks (BLK) and whites (WHT).

Region

The country has been divided into four regions — Southeast (SE), Northeast (NE), Central (C) and West (W) — in order to examine results for the regions relative to the national level of performance. The states included in each region are identified in Exhibit 1.

EXHIBIT 1. National Assessment Geographic Regions



Parental Education

The four parental-education categories are defined by the highest reported level of education attained by either of a respondent's parents. These categories include (1) those whose parents have had no high school education (NHS); (2) those who have at least one parent with some high school education (SHS); (3) those who have at least one parent who graduated from high school (GHS); and (4) those who have at least one parent who has had some post high school education (PHS) -- college, vocational training or adult education courses.

Size and Type of Community

The categories within this variable are defined by the size of the community and by the type of employment of the majority of the people in the community. All population sizes are based on data from the 1970 census. For in-school respondents, the school principal completes an occupational profile of the area the school serves.

Extreme rural (ER). Areas with a population under 10,000 where a high proportion of the residents are farmers or farm workers.

Low metro (LM). Areas in or around cities with a population greater than 200,000 where a high proportion of residents are on welfare or are not regularly employed.

High metro (HM). Areas in or around cities with a population greater than 200,000 where a high proportion of the residents are in professional or managerial positions.

Main big city (MBC). Communities within the city limits of a city with a population over 200,000 and not included in the high-metro or low-metro categories.

Urban fringe (UF). Communities within the metropolitan area of a city with a population greater than 200,000 but outside of the city limits and not included in the high-metro or low-metro categories.

Medium city (MC). Cities with populations greater than 25,000 but less than 200,000.

Small places (SP). Communities with a population of less than 25,000 and not included in the extreme-rural category.

Data Analysis

To analyze the mathematics assessment, National Assessment weighted the data for each respondent in accordance with the respondent's probability of selection and then used the weighted data to estimate the percentages of individuals at each age who possessed various knowledges, understandings, skills and abilities. Two statistics form the basis of the report.

1. The "p-value" represents the percentage of persons in each of the populations who gave a particular response to a specific exercise. For example, the percentage of 9-year-olds who added two numbers correctly is defined as the sum of the weighted number of these responses divided by the sum of the weighted number of responses to the exercise for all 9-year-olds. Percentages for each reporting group (e.g., 9-year-olds in the Southeast) were computed in a similar manner, using only the weighted response of persons in that group.

2. The "Δp-value" represents the difference between the performance of a reporting group and the performance of the total age level (the national level of performance). For example, a Δp-value for females is the difference between the percentage of females who gave a particular response to a specific exercise and the corresponding national percentage for all students that age:

   Female percentage - national percentage = female Δp-value.

   On a given exercise, if a group's p-value is lower than the national p-value, the difference between the two estimated percentages — the Δp-value — is expressed as a negative number; if a group's p-value for a particular response to an exercise is higher than the national p-value, the difference is a positive number. For example, if the p-value for 9-year-old females is 65 and the national p-value for all 9-year-olds is 70, the female Δp-value for 9-year-olds would be -5 on that exercise.

The full-page graph following provides an exhibit of p-values for a given age level (in this case, 9-year-olds) on a specific set of exercises (in this case, all exercises) for a major content area (numbers and numeration). By examining the graph, one can see the range of percentages for the nation and each of the reporting groups. Each "X" on the graph represents one exercise or exercise part. For each distribution of exercise results, the following information appears.

1. NATL = National

Region

NE = Northeast
SE = Southeast
C = Central
W = West

Sex

M = Male
F = Female

Race

WHT = White
BLK = Black

Size and Type of Community

ER = Extreme rural
LM = Low metro
HM = High metro
MBC = Main big city
UF = Urban fringe
MC = Medium city
SP = Small places

Parental Education

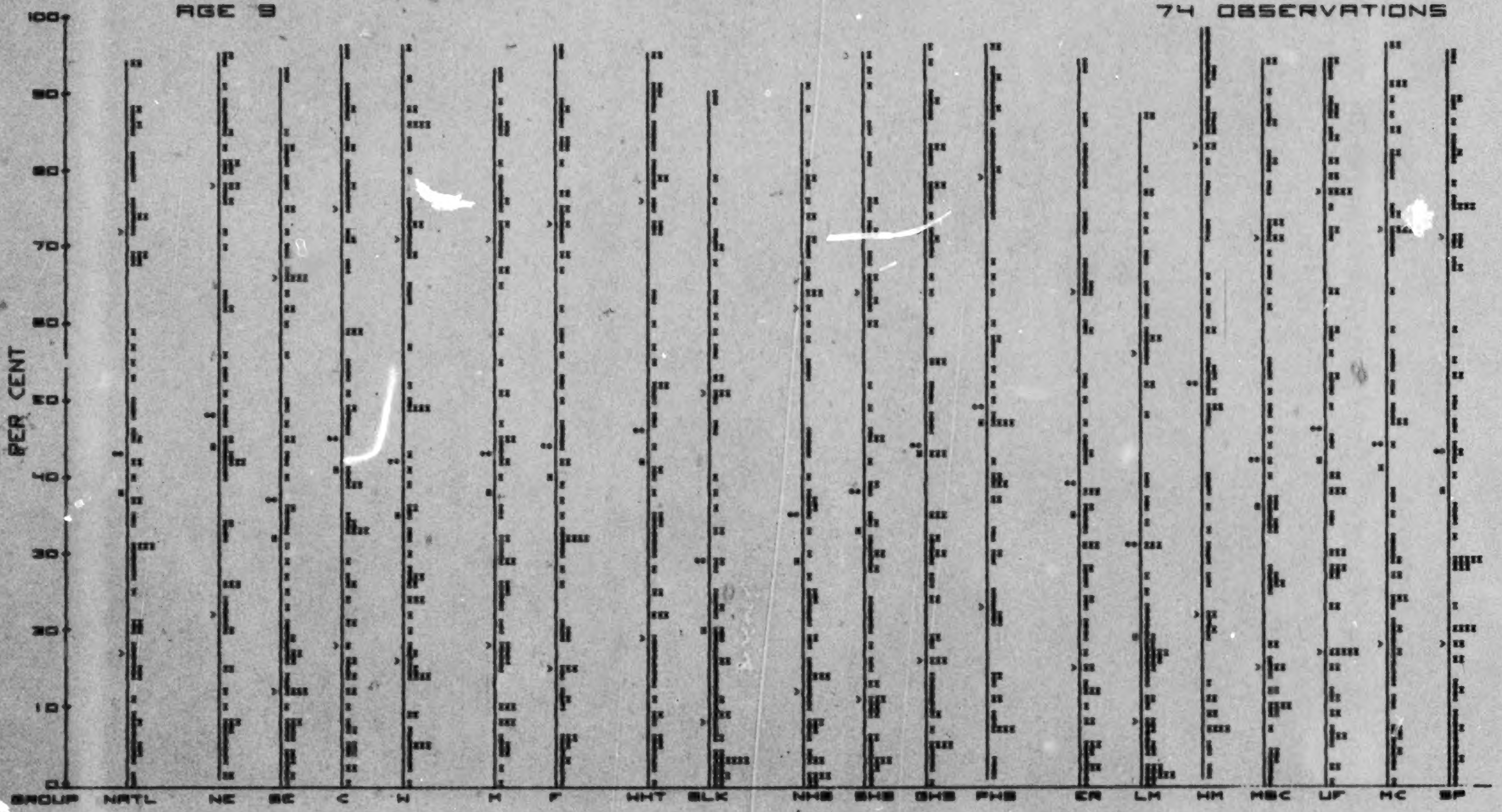
NHS = No high school
SHS = Some high school
GHS = Graduated high school
PHS = Post high school

NUMBERS AND NUMERATION

ALL EXERCISES

AGE 9

74 OBSERVATIONS



GROUP	NATL	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
MEAN P	43	48	37	46	42	43	44	48	28	36	38	44	48	38	31	53	42	48	44	43
MEDIAN P	38	44	32	41	36	38	40	42	20	29	33	43	47	36	18	53	38	42	41	38

2. Mean p-value. This is the arithmetic average of all the p-values for a group on the set of exercises and is indicated on the graph by a double asterisk (**).

3. Median p-value. The median p-value is the middle value when all the p-values for a set of exercises have been ordered. For an odd number of p-values, the median is the middle number. For an even number of p-values, the median is equal to the average of the middle two values. The median is indicated by the following symbol: ≶.

4. Hinge p-value. This is similar to the quartile. When the ordered p-values have been divided into two sets at the median, the upper and lower hinges are the medians of the two sets. (For an odd-number set of p-values, the median is considered to be a member of both sets.) The hinges are indicated by a "greater than" sign (>).

All exhibits in this report are accompanied by the number of observations (p-values from exercises or exercise parts) used in the analyses. Each single-part exercise contributed one p-value (one observation of "X") to the summary analyses. Multipart exercises were usually analyzed as if each exercise part was a separate exercise. The exception to this occurred when subject-matter specialists felt that a respondent needed to have performed acceptably on several or all parts of the exercise in order to achieve an acceptable performance level on the exercise.

The following exhibits in this chapter summarize the performance of each age level on the six major content areas and all the mathematics exercises administered to the age level. The exhibits also provide the mean p-values for the reporting groups at each age. Although there are a limited number of exercises in the areas of variables and relationships, probability and statistics, and consumer mathematics for 9-year-olds, the summary values have been presented for the convenience of the reader. Caution should be taken in interpreting summaries based on less than 10 exercises or exercise parts.

MEAN P-VALUES BY CONTENT AREA

AGE 9

Content Area	Numbers and Numeration	Math Measurement	Variables and Relationships	Probability and Statistics	Geometry	Consumer Math	All Exercises
Number of Results	74	35	6	5	39	4	163
National	43.2	50.0	37.4	14.2	30.1	61.6	40.9
Region							
Northeast	47.6	53.0	39.4	14.3	31.4	65.4	44.0
Southeast	37.2	43.9	32.9	12.2	25.1	55.0	35.3
Central	45.3	52.8	40.4	15.2	32.0	64.7	43.1
West	42.0	50.0	36.7	15.0	31.6	60.5	40.7
Sex							
Male	42.6	52.3	37.9	15.0	31.3	62.9	41.5
Female	43.7	47.8	37.0	13.4	28.9	60.3	40.3
Color							
White	46.3	53.4	39.4	15.2	32.0	65.7	43.7
Black	29.3	34.1	28.2	9.8	21.8	42.8	28.3
Parental Education							
No High School	35.3	41.2	31.4	14.1	24.4	53.6	33.6
Some High School	38.4	44.7	33.1	12.9	26.5	56.4	36.4
Graduated High School	44.3	49.7	38.8	13.0	29.9	61.5	41.3
Post High School	49.4	56.2	42.4	15.7	34.8	66.9	46.5
Size and Type of Community (STOC)							
Low Metro	30.6	37.6	30.1	10.9	21.9	40.6	29.7
Extreme Rural	39.1	46.1	33.4	11.6	25.8	57.9	36.9
Small Places	42.7	49.4	36.7	14.7	29.6	61.3	40.4
Medium City	44.2	51.0	38.6	14.8	30.6	63.3	41.8
Main Big City	42.4	48.4	38.0	12.2	29.7	61.3	40.0
Urban Fringe	46.3	53.4	38.9	15.4	32.0	65.1	43.7
High Metro	51.7	59.4	44.0	16.6	37.7	70.7	49.1

MEAN P-VALUES BY CONTENT AREA

AGE 13

Content Area	Numbers and Numeration	Math Measurement	Variables and Relationships	Probability and Statistics	Geometry	Consumer Math	All Exercises
Number of Results	87	35	28	11	37	14	212
National	57.0	61.5	41.3	23.5	47.6	39.7	51.1
Region							
Northeast	61.3	65.2	46.3	26.3	52.0	44.4	55.4
Southeast	52.6	56.2	36.8	20.0	39.7	34.4	45.9
Central	59.5	64.1	43.8	25.0	51.4	41.4	53.7
West	53.9	59.6	37.8	22.2	46.0	38.1	48.6
Sex							
Male	56.6	64.1	40.8	25.4	49.7	39.4	51.8
Female	57.4	58.9	41.9	21.6	45.5	40.0	50.4
Color							
White	60.7	65.5	45.2	26.2	51.7	44.0	54.9
Black	39.5	40.9	23.2	10.6	27.5	19.7	32.7
Parental Education							
No High School	46.2	49.8	29.3	15.8	33.7	28.0	39.6
Some High School	50.2	54.1	33.5	16.1	37.2	31.5	43.3
Graduated High School	56.7	61.9	40.5	22.4	47.5	38.7	50.8
Post High School	64.5	68.7	49.9	30.5	55.8	48.1	58.8
Size and Type of Community (STOC)							
Low Metro	41.2	47.5	25.5	14.2	32.2	22.1	35.9
Extreme Rural	54.7	59.4	39.2	20.7	44.3	35.9	48.6
Small Places	57.1	61.8	41.3	23.2	46.5	39.8	51.0
Medium City	57.4	62.0	42.9	25.7	47.7	41.9	51.9
Main Big City	55.7	59.0	39.4	21.1	46.7	40.1	49.6
Urban Fringe	58.9	63.0	42.7	25.0	50.4	41.2	53.0
High Metro	66.8	70.1	51.4	30.3	59.9	50.4	61.0

MEAN P-VALUES BY CONTENT AREA

AGE 17

Content Area	Numbers and Numeration	Math Measurement	Variables and Relationships	Probability and Statistics	Geometry	Consumer Math	All Exercises
Number of Results	75	32	50	18	37	34	246
National	65.2	61.9	41.2	30.8	55.1	49.0	53.5
Region							
Northeast	68.4	64.7	46.9	33.3	59.1	51.5	57.1
Southeast	60.5	56.1	35.7	26.2	46.5	43.4	47.8
Central	66.5	63.7	41.1	32.2	57.6	51.3	54.9
West	64.2	61.9	39.9	30.7	55.4	48.6	52.9
Sex							
Male	66.9	66.5	42.8	33.7	59.7	51.6	56.2
Female	63.6	57.6	3[illegible].7	28.1	50.7	46.6	51.0
Color							
White	69.3	66.1	44.9	33.6	59.1	53.1	57.4
Black	44.1	39.7	22.9	17.1	32.8	27.7	33.2
Parental Education							
No High School	50.7	48.3	26.2	19.0	39.6	35.8	39.3
Some High School	53.7	50.9	28.8	23.2	40.7	38.7	41.9
Graduated High School	64.3	61.0	38.9	29.9	54.0	48.2	52.3
Post High School	73.6	69.9	50.7	37.1	64.2	56.7	61.9
Size and Type of Community (STOC)							
Low Metro	49.6	47.5	28.1	21.8	39.8	34.6	39.3
Extreme Rural	60.8	59.7	36.0	26.7	49.6	44.0	49.0
Small Places	66.1	63.2	40.9	30.9	55.9	50.8	54.3
Medium City	66.9	62.4	43.6	33.3	57.0	50.2	55.2
Main Big City	62.8	59.4	38.1	28.5	52.0	45.8	50.7
Urban Fringe	67.5	63.3	42.5	32.4	57.2	50.1	55.3
High Metro	74.1	70.5	53.5	37.6	66.2	58.5	63.3

MEAN P-VALUES BY CONTENT AREA

ADULTS

Content Area	Numbers and Numeration	Math Measurement	Variables and Relationships	Probability and Statistics	Geometry	Consumer Math	All Exercises
Number of Results	44	32	21	12	29	41	179
National	61.1	66.4	46.2	33.0	54.9	58.3	56.8
Region							
Northeast	62.1	66.5	47.8	33.8	56.0	58.3	57.5
Southeast	57.6	63.3	43.2	30.5	49.2	54.8	53.1
Central	61.7	67.7	45.3	33.5	55.9	59.4	57.5
West	62.3	67.4	48.1	33.9	57.5	59.9	58.4
Sex							
Male	65.7	72.4	52.2	38.3	62.1	62.9	62.3
Female	56.8	60.8	40.7	28.2	48.3	54.0	51.7
Color							
White	64.6	70.3	49.6	36.1	58.8	62.6	60.6
Black	38.5	41.4	26.4	15.3	29.7	31.6	33.1
Parental Education							
No High School	52.8	57.9	35.2	24.9	43.5	48.6	47.3
Some High School	56.8	61.9	38.9	28.3	49.4	54.1	51.9
Graduated High School	63.4	69.2	48.7	34.7	58.7	61.5	59.6
Post High School	71.7	76.5	61.8	44.4	68.6	69.7	68,6
Size and Type of Community (STOC)							
Low Metro	47.7	52.0	32.4	20.3	40.4	41.8	42.3
Extreme Rural	58.9	65.2	39.7	31.8	49.6	56.1	53.9
Small Places	60.9	66.9	45.3	32.4	54.9	59.3	56.9
Medium City	61.3	67.6	47.9	33.1	56.7	59.1	57.7
Main Big City62.	62.3	65.3	48.7	32.9	54.1	57.5	56.9
Urban Fringe	61.0	66.2	45.7	33.9	57.0	58.8	7.2
High Metro	71.4	75.3	59.9	43.8	65.8	68.0	7.2

CHAPTER 2

NUMBERS AND NUMERATION

The exercises summarized in this chapter deal with the major content area of numbers and numeration. Numbers provide a means for quantifying objects in a uniform fashion; numeration provides a system for naming and organizing numbers. While different words and symbols can be used to identify the concept "three," the idea of threeness remains the same. There are different systems of numbers having specific properties, and those properties define the "rules" of mathematical operations in each system. To summarize this area, exercises from the specific content areas of number-and-numeration concepts, properties of numbers and operations, arithmetic computation and sets are included in the summaries presented in this chapter.

The first section of summary graphs (immediately following) presents the range of percentages (p-values) for the nation and each reporting group on these exercises for each age. The second section of summary graphs (at the end of this chapter) will deal with the overlap exercises (exercises administered to adjacent age levels). Mean p-values are indicated by **; median p-values are indicated by ⪤, and hinge p-values are indicated by >. Each graph provides the distribution of percentages for each of the reporting groups at that specific age. The abbreviations used for the reporting groups and their definitions are presented in Chapter 1. The next five chapters will follow the same format.

From the first graph, it can be seen that 9-year-olds' percentages for the nation ranged from 0% to 94%. Their mean percentage was 43% while their median percentage was 38%. The range of the middle half of the exercises was between the lower hinge of 17% and the upper hinge of 72%. A group's typical performance is indicated by its mean or median percentage and by the range between its two hinges. For example, it can be seen that 9-year-olds from the Northeast typically performed above the nation on these exercises. Their mean percentage was 45%; their median was 44%, and the range of the middle half of the p-values was betwen 22% and 78%.

Readers who wish to know the performance of a reporting group on the specific exercises included in the summary will find a list of the exercises in Appendix A that indicates the performance of each group on each exercise or exercise part included in the summary. A "+" sign indicates that the group performed significantly above the national level of performance; a "-" sign indicates that the group performed significantly below the national level of performance on that exercise.

The absence of either sign indicates that there was no significant difference between the performance of the reporting group and that of the nation. To be considered significant, the difference between the group and the nation had to be greater (in absolute value) than twice its standard error. This is approximately equivalent to the .05 level of statistical significance. The contents of specific exercises and the exact results for each reporting group on each exercise may be located in the *Math Technical Report: Exercise Volume, Report 04-MA-20* by referring to the exercise-release numbers.

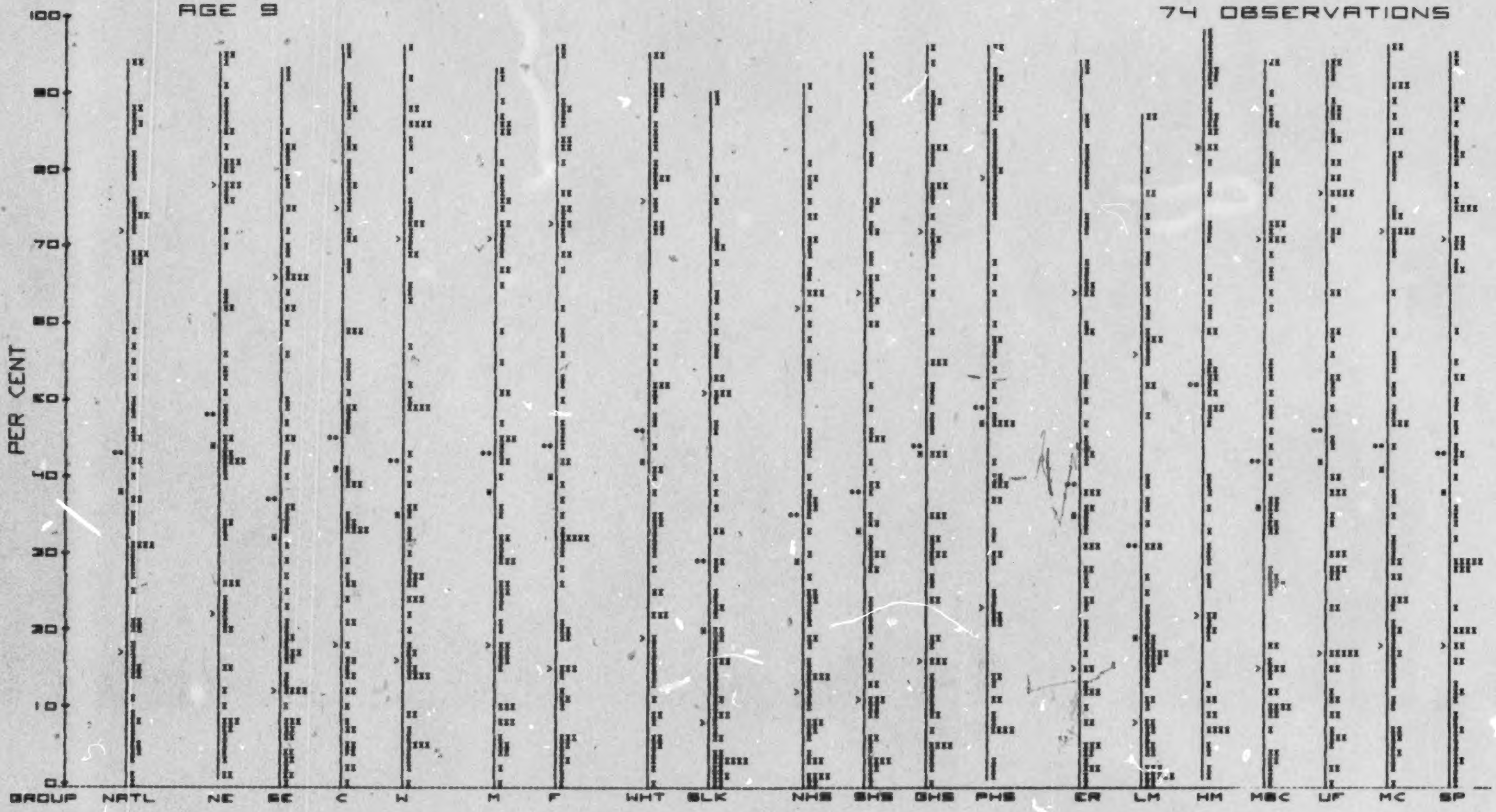
When one is interpreting the data presented in these graphs, one must consider all the factors that may influence educational achievement and performance on the exercises. Within limitations of measurement and sampling error, the percentages accurately describe the educational attainments of the groups designated in the National Assessment sample. However, one cannot conclude that any difference in achievement between the group and the nation as a whole is solely attributable to the factor identified by the group name.

NUMBERS AND NUMERATION

ALL EXERCISES

AGE 9

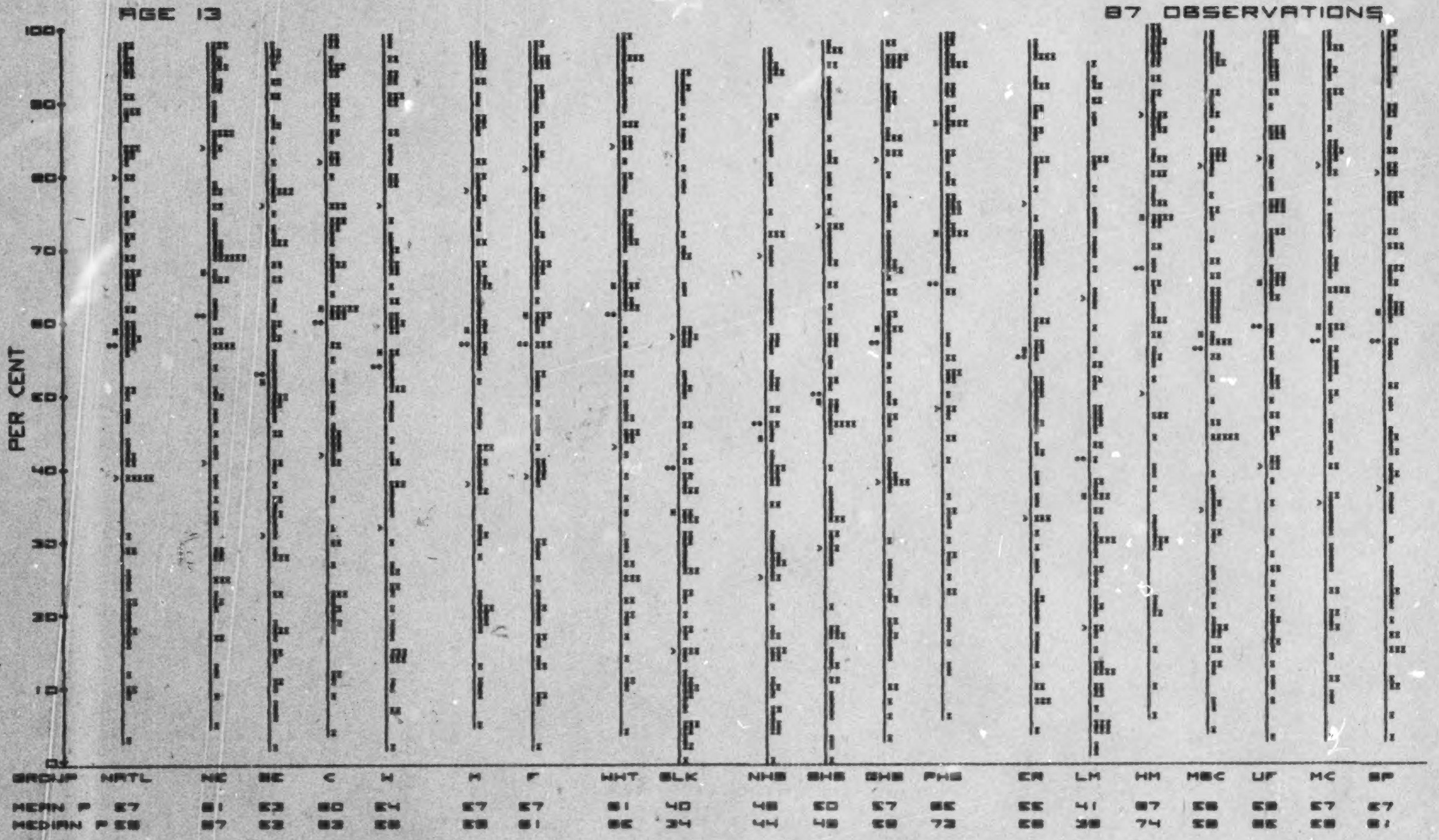
74 OBSERVATIONS



GROUP	NATL	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
MEAN P	43	48	37	45	42	43	44	46	28	35	38	44	48	39	31	52	42	46	44	43
MEDIAN P	38	44	32	41	35	38	40	42	20	28	33	43	47	35	19	52	38	[illegible]	41	38

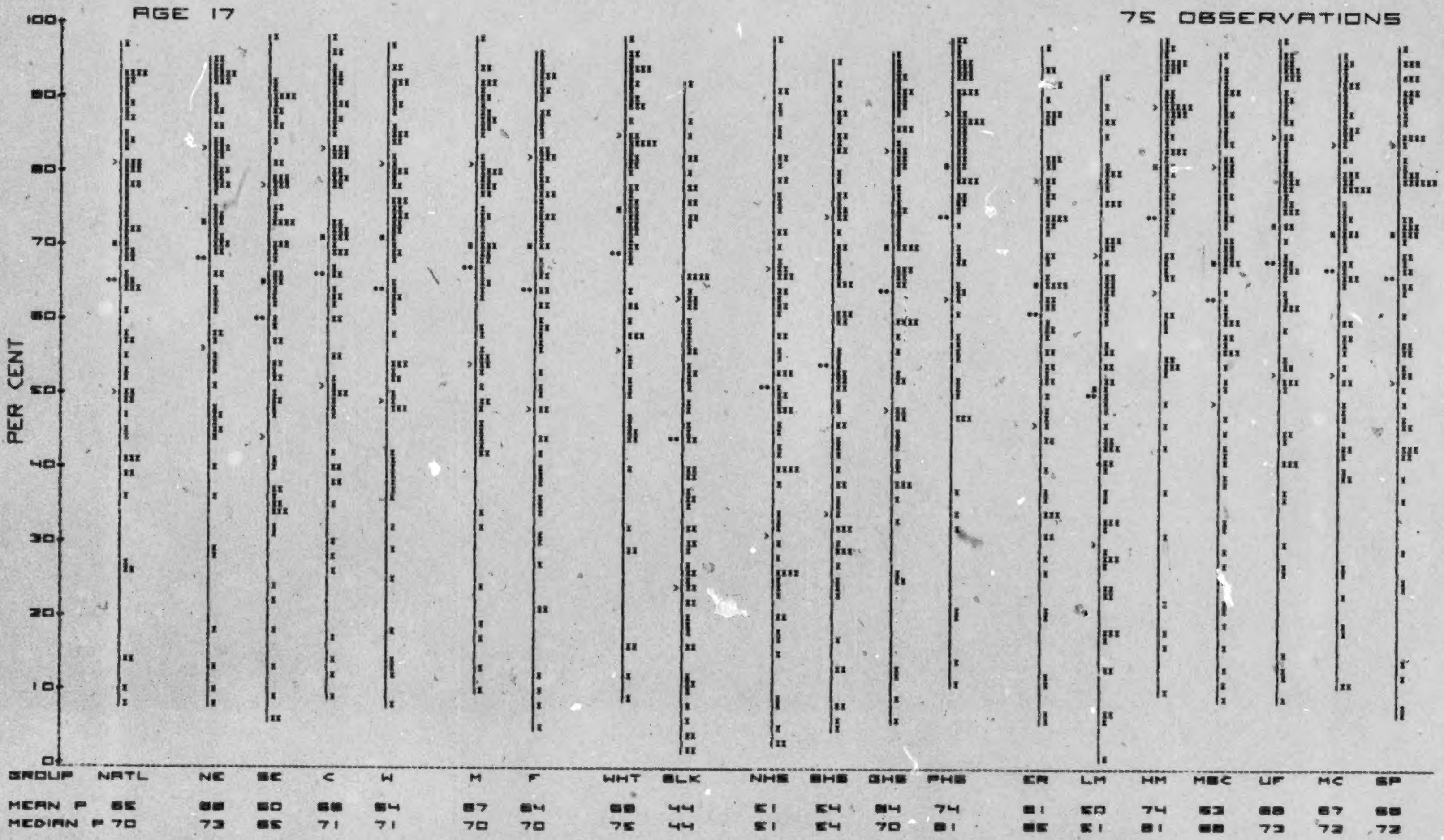
NUMBERS AND NUMERATION

ALL EXERCISES



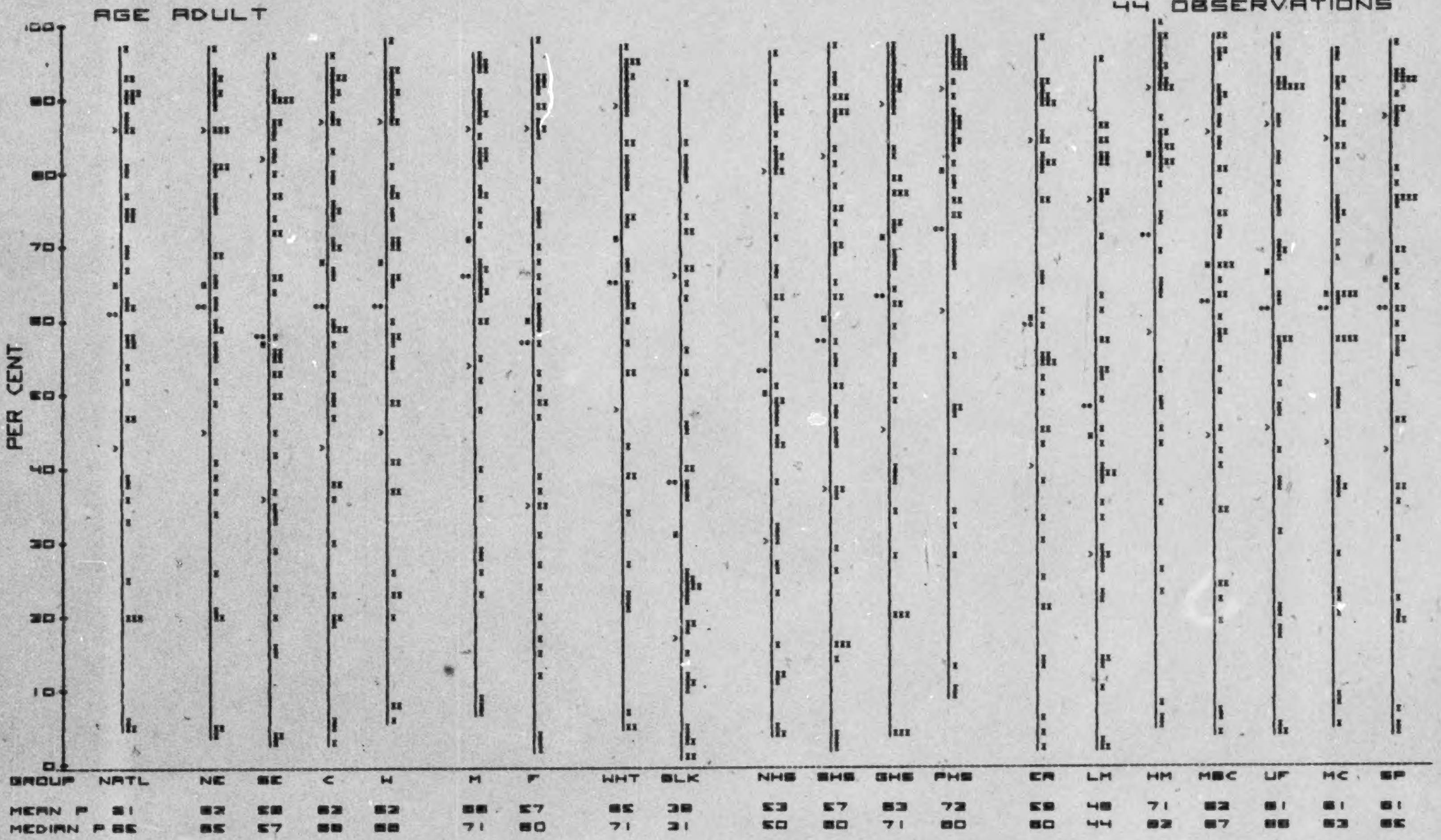
NUMBERS AND NUMERATION

ALL EXERCISES



NUMBERS AND NUMERATION

ALL EXERCISES



Overlap Exercises

The preceding graphs allowed one to consider the performance of the various reporting groups within an age level for a specific set of exercises. However, all four age levels were not asked to respond to all the same exercises. In some cases, exercises were developed for use at only one age level and, hence, administered only to that age level. Other exercises were developed for and administered to two or more age levels. These are called overlap exercises.

Comparisons among ages are based on the set of exercises taken at more than one age level. Because mathematics is considered to be a sequential and hierarchial learning process, it is interesting to look at performance from one age level to the next. Overlaps are presented for 9- and 13-year-olds, 13- and 17-year-olds, and 17-year-olds and young adults. Although some exercises were administered to all four or three age levels, there were not enough of these exercises to provide reliable summaries for all of the major content areas.

The following six graphs are to be examined in pairs. The number-and-numeration overlap exercises for 9- and 13-year-olds are presented in the first two graphs. The first graph deals with the performance of 9-year-olds at the national and reporting-group level on the 43 overlap exercises in this content area; the second graph provides information on the performance of 13-year-olds for the *same* 43 exercises. The next pair of graphs allows comparisons of the 13- and 17-year-olds with regard to performance on the 68 overlap exercises in this content area; the third pair of graphs allows comparison of the 17-year-olds and adults on the 43 overlap exercises in this content area.

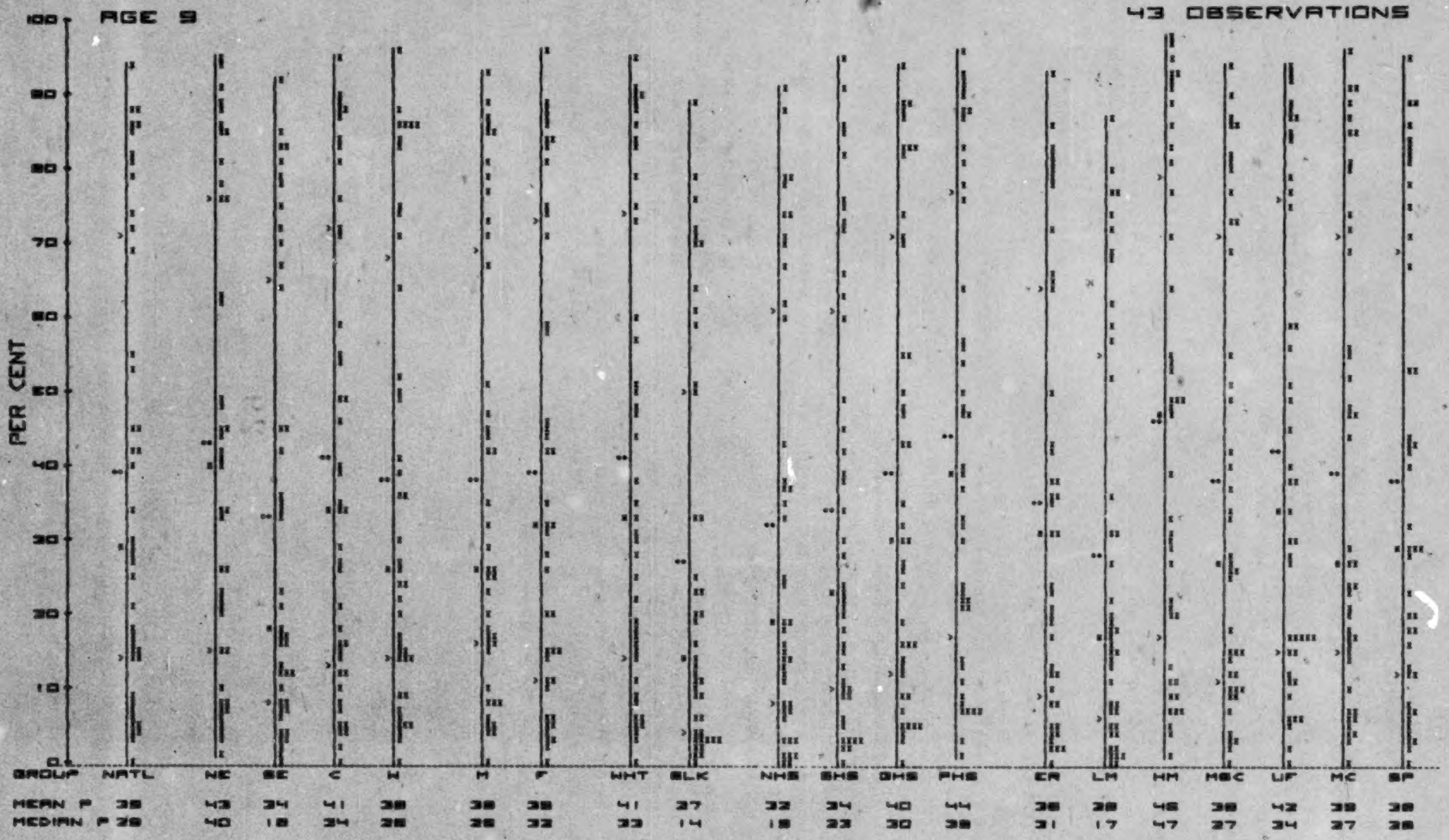
The mean and median percentages and the range of the middle half of the exercises are once again indicated for the nation and the reporting groups on each graph. The same format for overlap-summary graphs will be followed in the next five chapters.

Appendix B provides information on the performance of the reporting groups for each of the exercises included in each overlap-summary graph. Specific information about the content of these exercises and performance at the exercise level can be found in the *Math Technical Report: Exercise Volume* by using the exercise-release numbers.

While the overlap graphs provide percentages of success for common exercises, the exercises included are subsets of all number-and-numeration exercises administered at each age. The reader should consider both the complete set of exercises and the overlap subset in evaluating the performance of the age levels and/or reporting groups in each of the major content areas.

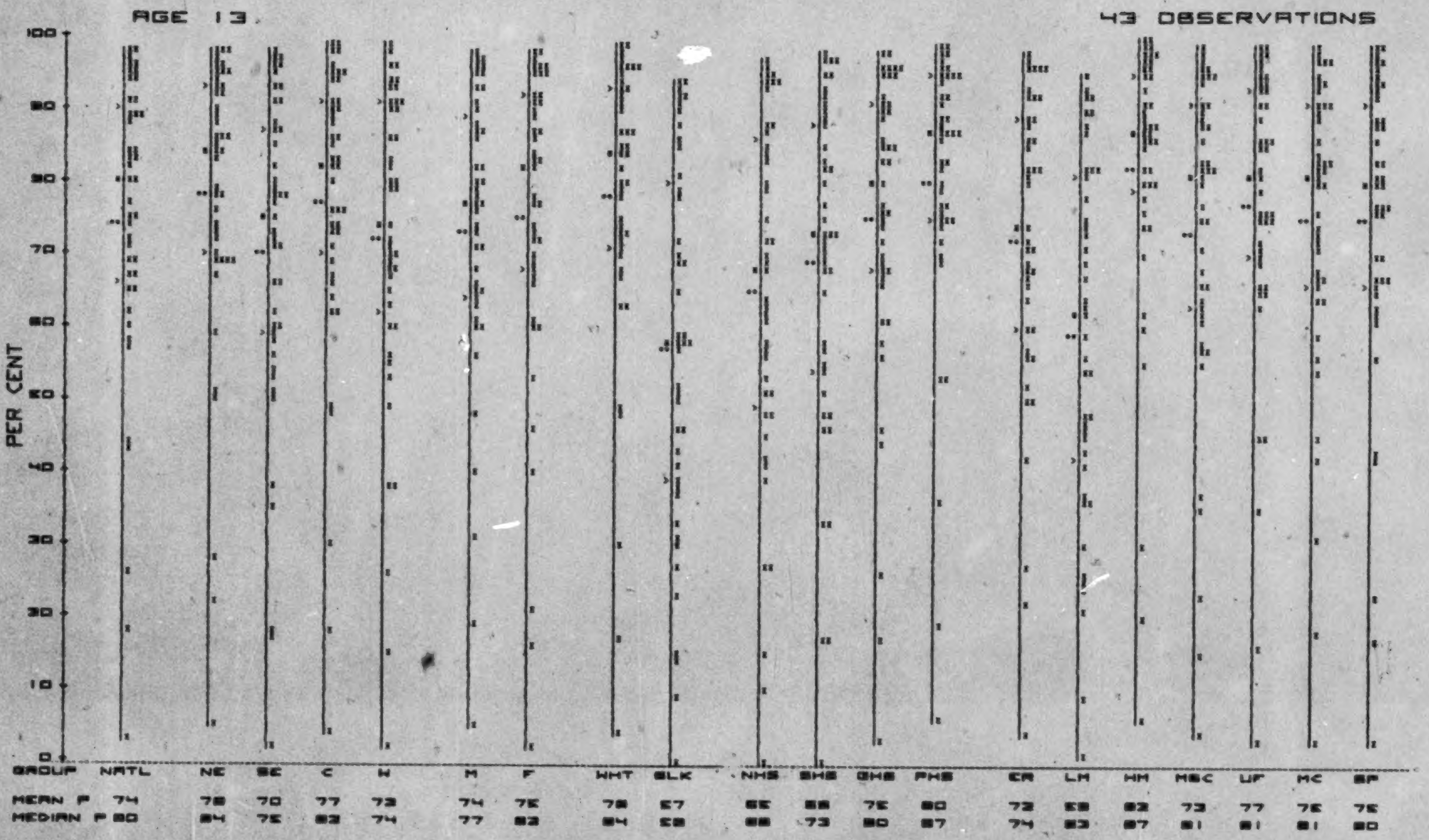
NUMBERS AND NUMERATION

OVERLAP EXERCISES FOR AGES 9 AND 13



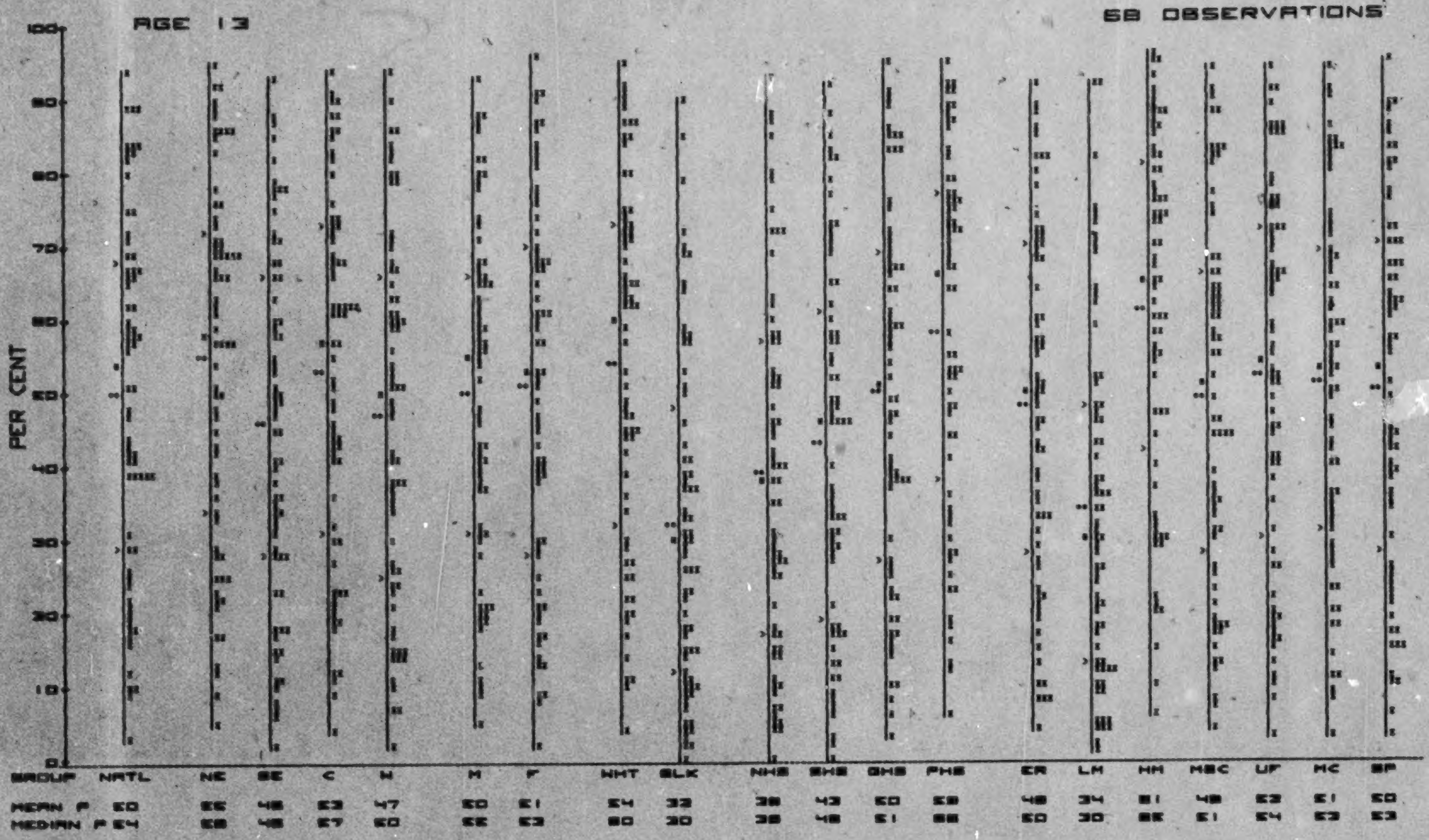
NUMBERS AND NUMERATION

OVERLAP EXERCISES FOR AGES 9 AND 13



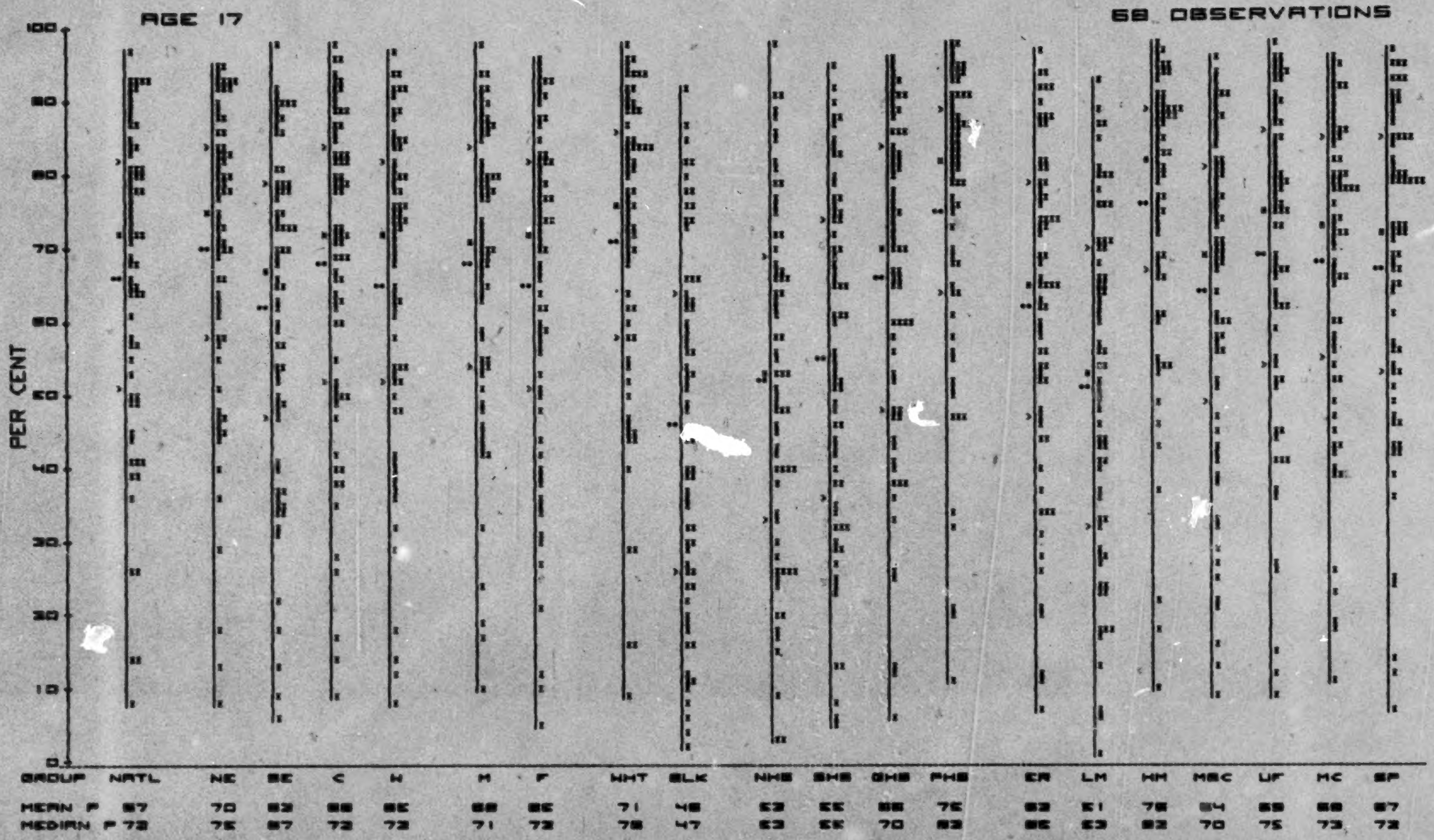
NUMBERS AND NUMERATION

OVERLAP EXERCISES FOR AGES 13 AND 17



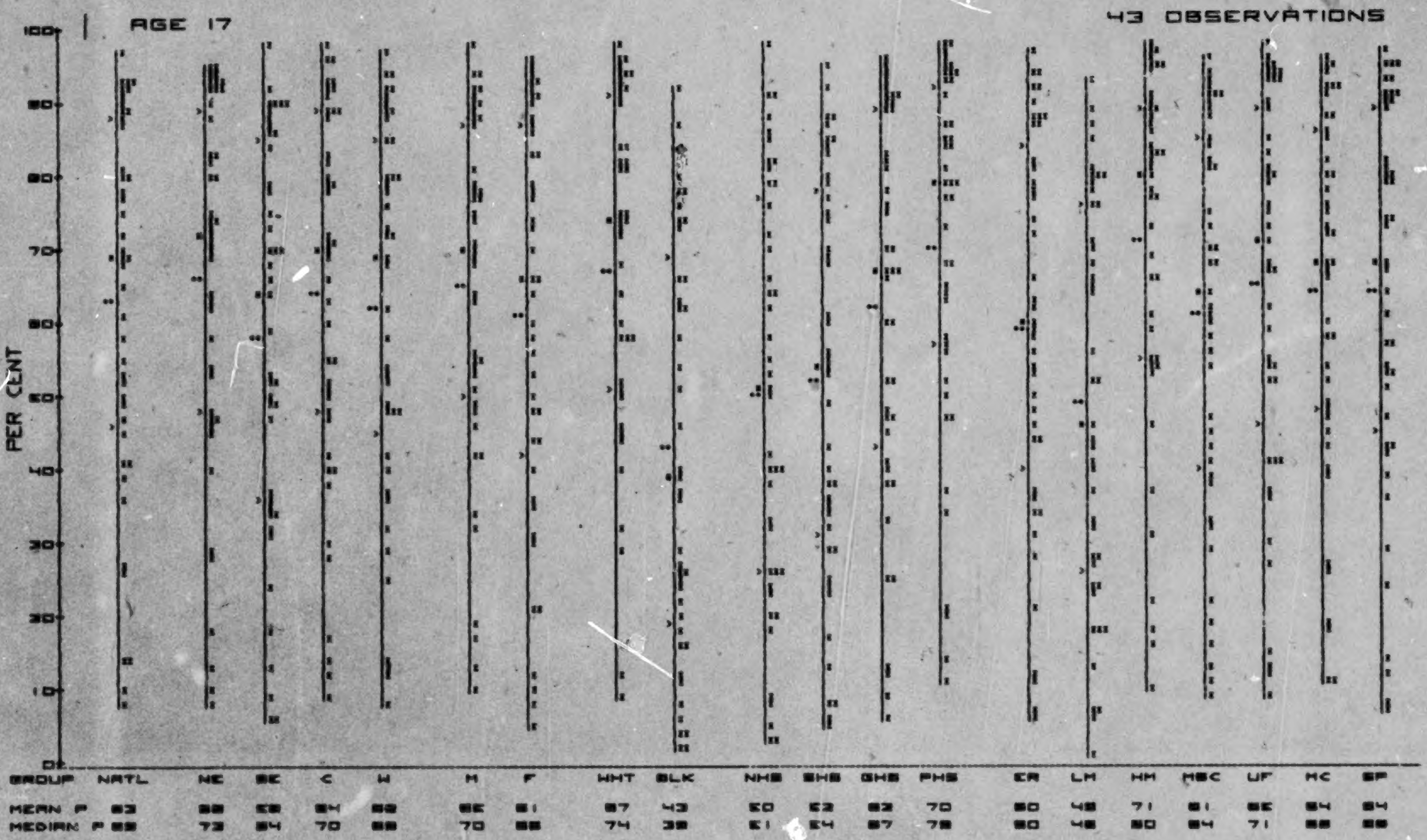
NUMBERS AND NUMERATION

OVERLAP EXERCISES FOR AGES 13 AND 17



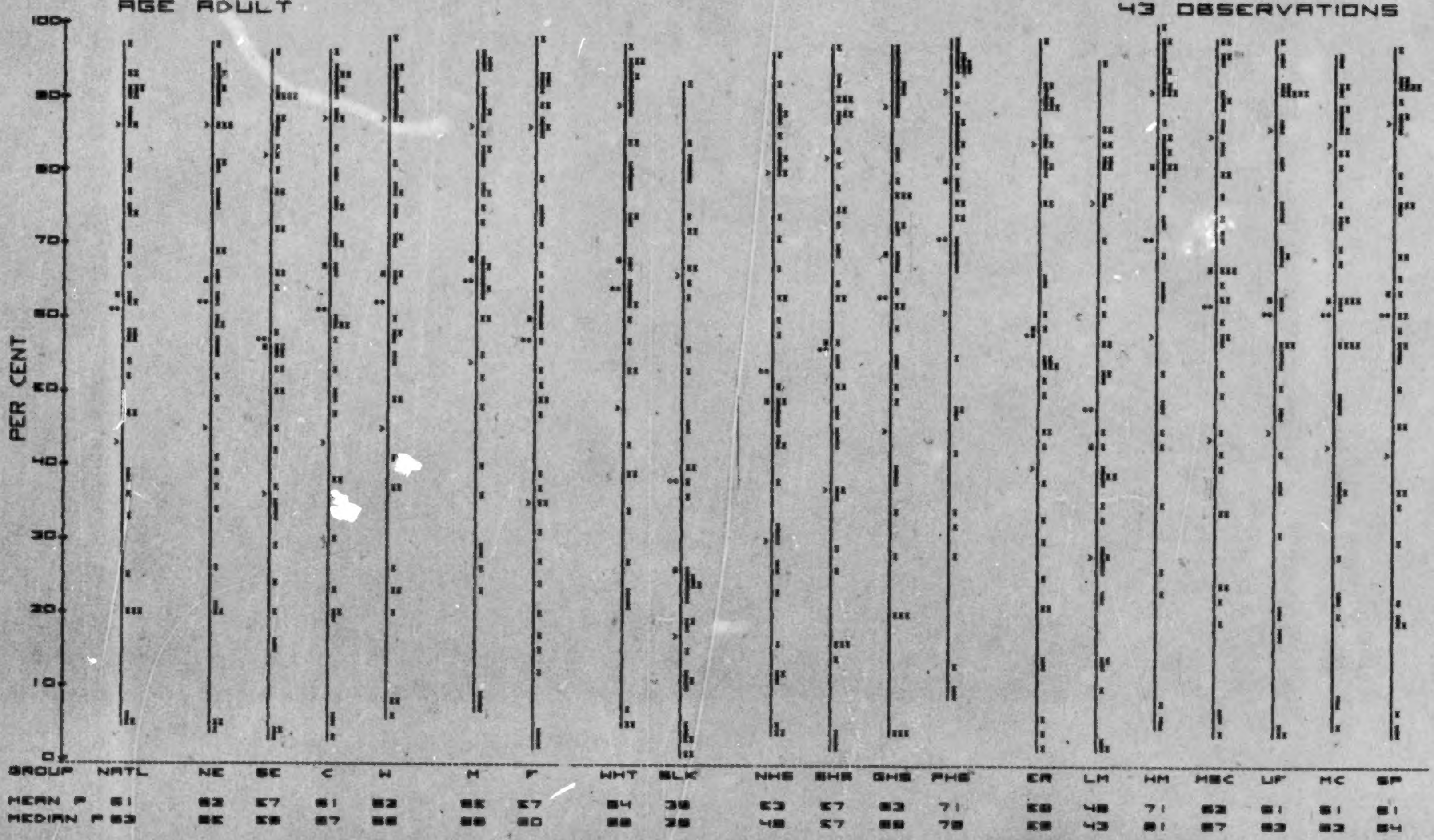
NUMBERS AND NUMERATION

OVERLAP EXERCISES FOR AGES 17 AND ADULT



NUMBERS AND NUMERATION

OVERLAP EXERCISES FOR AGES 17 AND ADULT



CHAPTER 3

MEASUREMENT

The exercises summarized in this chapter deal with the major content area of measurement. The measurement tasks assessed involved the recognition of various types of measurement units and their relationships, the ability to use measurement instruments, the ability to convert quantities from one unit to another and skill in the application of metric geometry. The exercises covered measurement of time, temperature, weight, length, capacity and area.

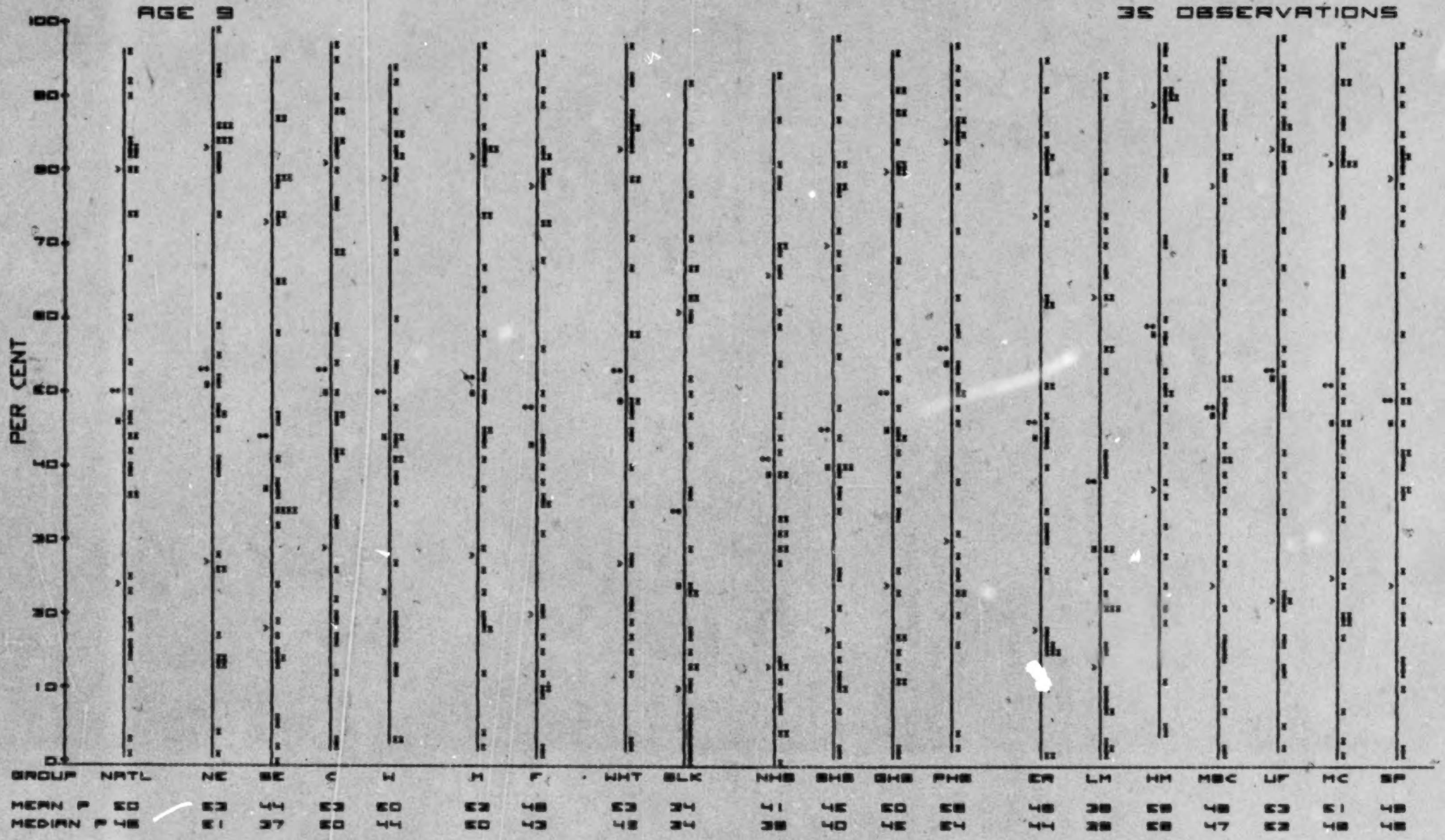
The first section of graphs (immediately following) presents the distribution of percentages (p-values) for the nation and each reporting group on these exercises for each age. Mean p-values are indicated by **; median percentages are indicated by ≷, and hinge p-values are indicated by >. The format of the graphs is explained in Chapter 2; the reporting-group definitions and standard abbreviations are presented in Chapter 1.

Readers who wish to know the performance of a reporting group on the specific exercises included in the summary will find a list of the exercises in Appendix A that indicates the performance of each group on each exercise or exercise part included in the summary. A "+" sign indicates that the group performed significantly above the national level of performance; a "-" sign indicates that the group performed significantly below the national level of performance on that exercise.

The absence of either sign indicates that there was no significant difference between the performance of the reporting group and that of the nation. To be considered significant, the difference between the group and the nation had to be greater (in absolute value) than twice its standard error. This is approximately equivalent to the .05 level of statistical significance. The contents of specific exercises and the exact results for each reporting group on each exercise may be located in the *Math Technical Report: Exercise Volume, Report 04-MA-20* by referring to the exercise-release numbers.

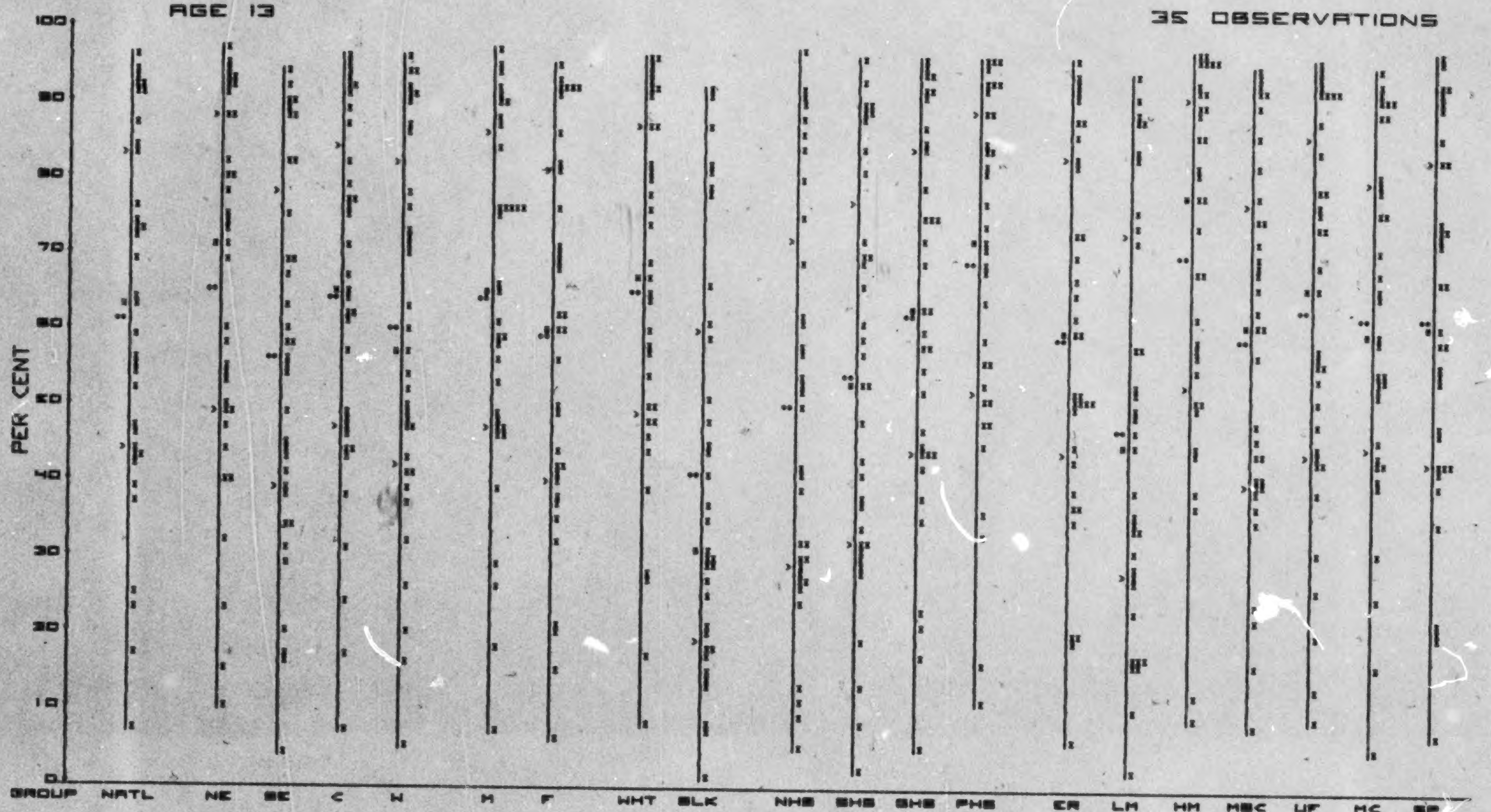
MEASUREMENT

ALL EXERCISES



MEASUREMENT

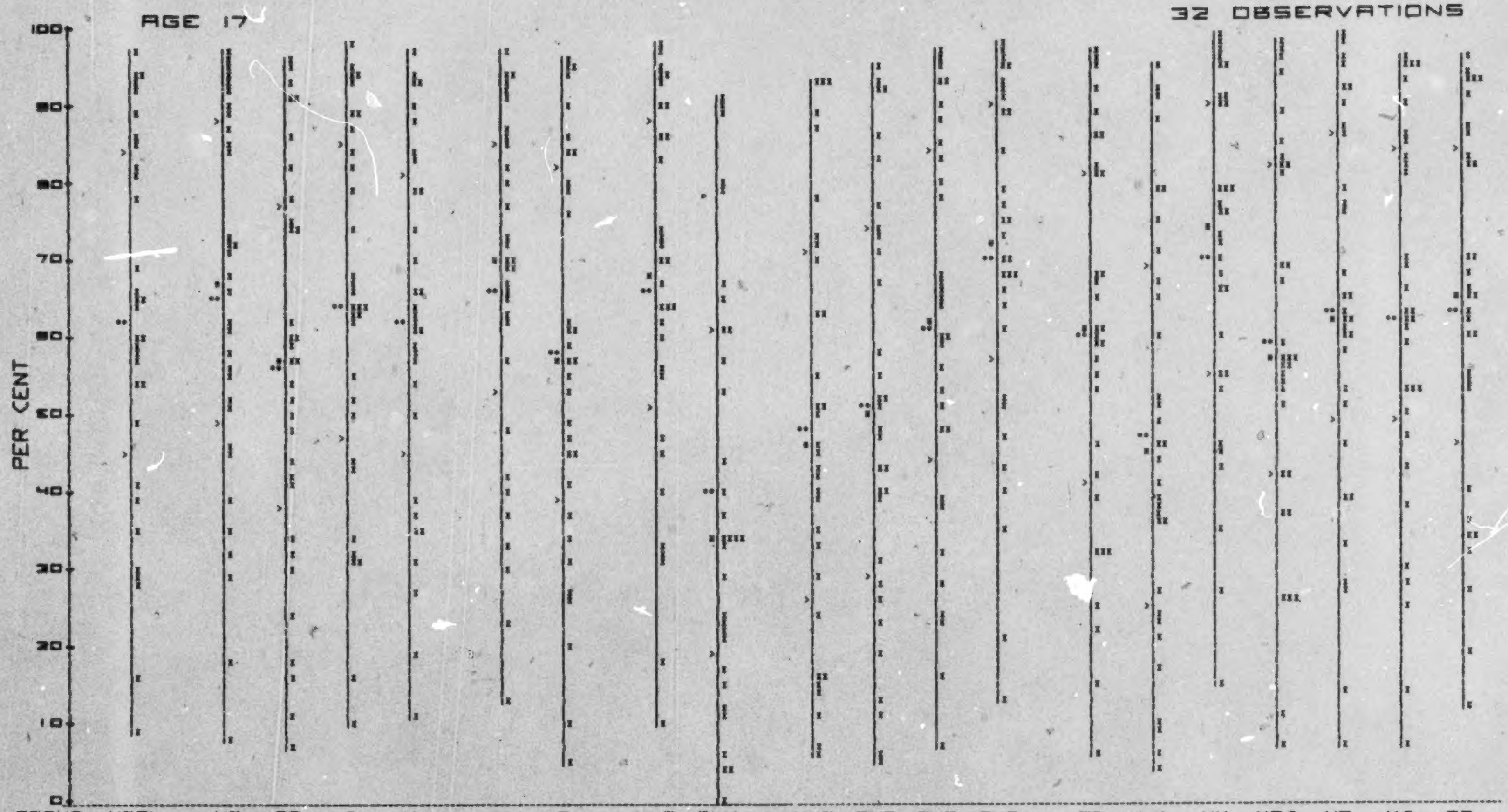
ALL EXERCISES



GROUP	NATL	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MSC	UF	MC	SP
MEAN P	61	65	58	64	60	64	58	65	41	50	54	62	68	58	47	70	58	63	62	62
MEDIAN P	63	71	58	65	57	65	60	67	31	50	53	63	72	60	45	78	61	66	60	61

MEASUREMENT

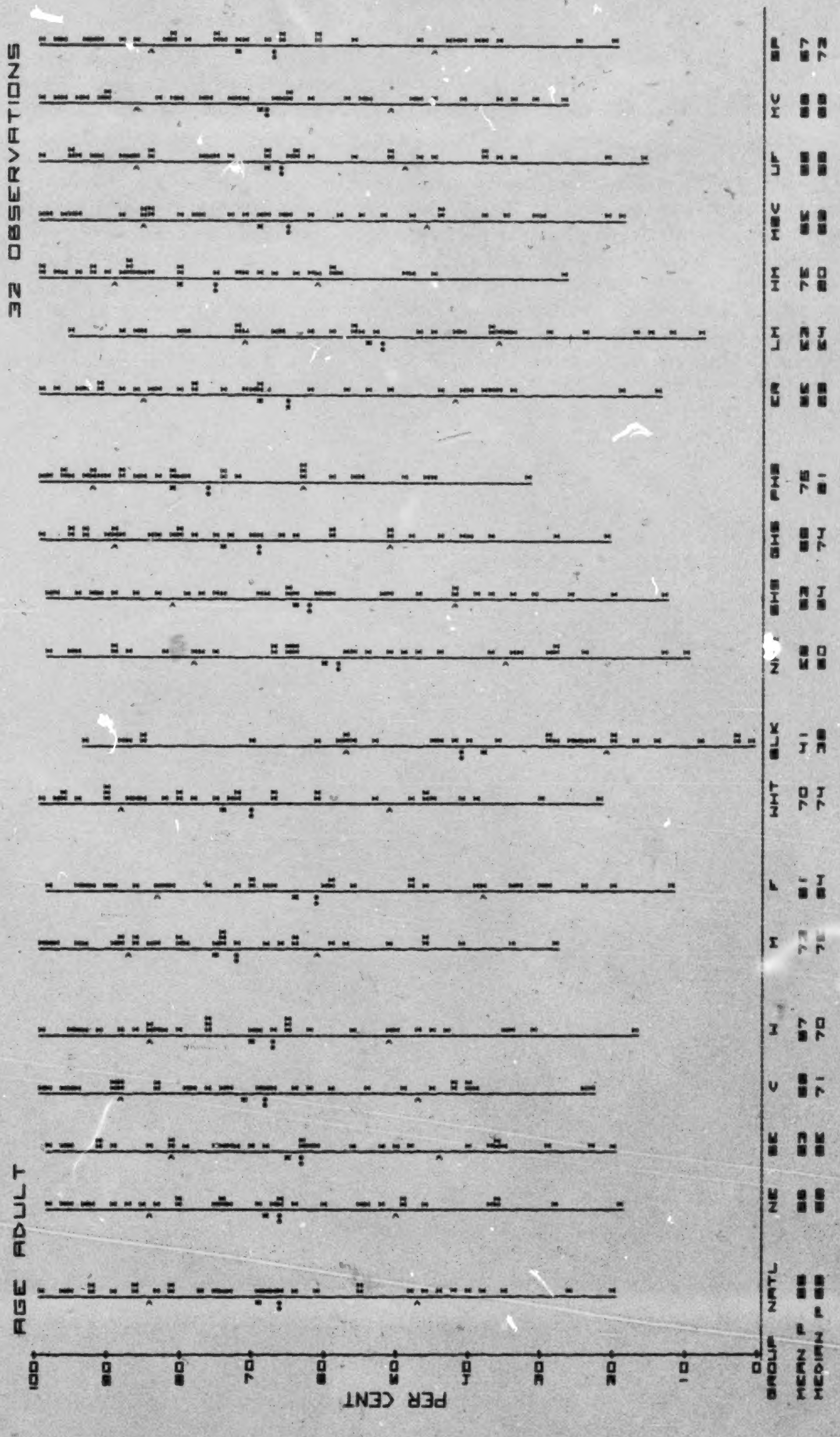
ALL EXERCISES



GROUP	NATL	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
MEAN P	62	65	58	64	62	66	58	66	40	48	51	61	70	60	47	70	58	63	62	63
MEDIAN P	62	67	57	64	63	70	57	68	34	46	50	62	72	61	45	74	57	62	62	65

MEASUREMENT

ALL EXERCISES



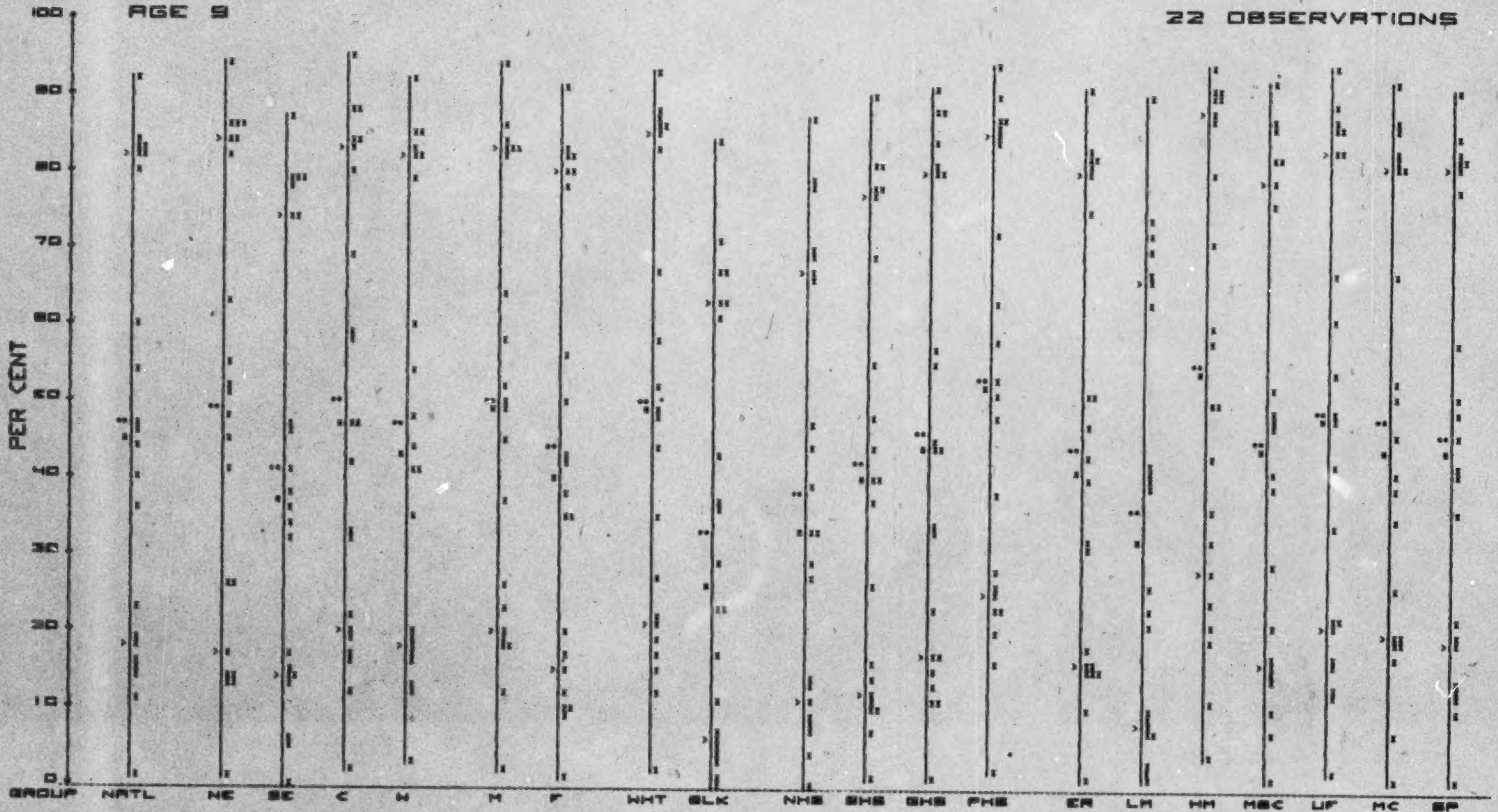
Overlap Exercises

The following four graphs are to be examined in pairs. The first two graphs present the performance for the nation and the reporting groups on the 22 measurement overlap exercises that were administered to the 9- and 13-year-olds. The next pair of graphs presents the same information for the 19 overlap exercises administered to 13- and 17-year-olds. Normally, a third pair of graphs would follow to provide this information for the overlap exercises in measurement administered to the 17-year-olds and young adults. However, all of the measurement exercises administered to 17-year-olds and adults were overlap exercises. Thus, the summary graphs for the overlap exercises are identical to the summary graphs for all measurement exercises at these two ages and will not be repeated.

Appendix B provides information on the performance of the reporting groups for each of the exercises included in each of the overlap summaries. Specific information about the content of these exercises and performance at the exercise level can be found in the *Math Technical Report: Exercise Volume* by using the exercise-release numbers.

MEASUREMENT

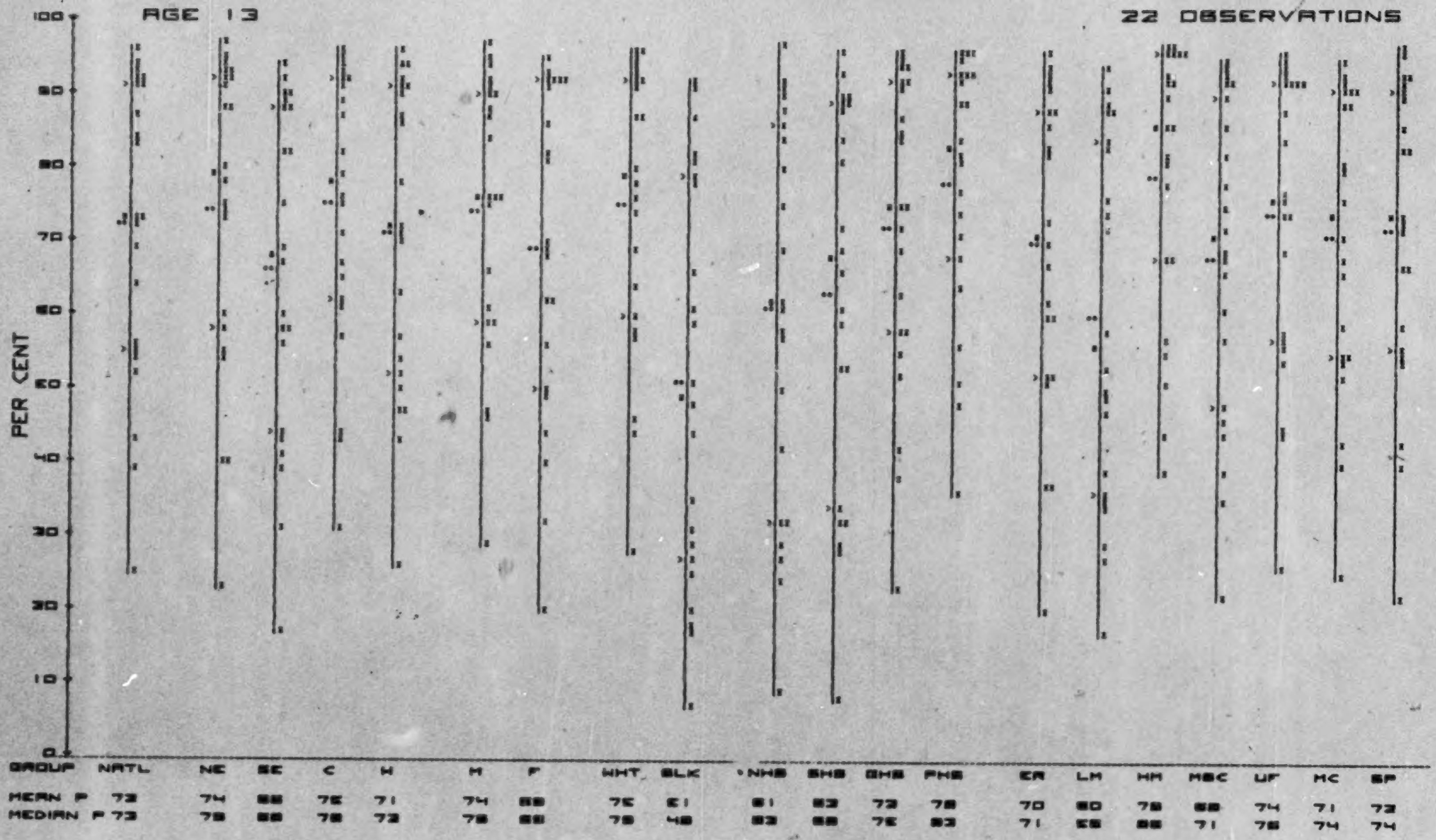
OVERLAP EXERCISES FOR AGES 9 AND 13



GROUP	NATL	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	EA	LM	HM	MBC	UF	MC	SP
MEAN P	47	48	41	50	47	50	44	50	33	38	42	46	53	44	38	55	45	49	48	46
MEDIAN P	45	48	37	47	43	48	40	48	28	33	40	44	52	41	32	54	44	48	44	44

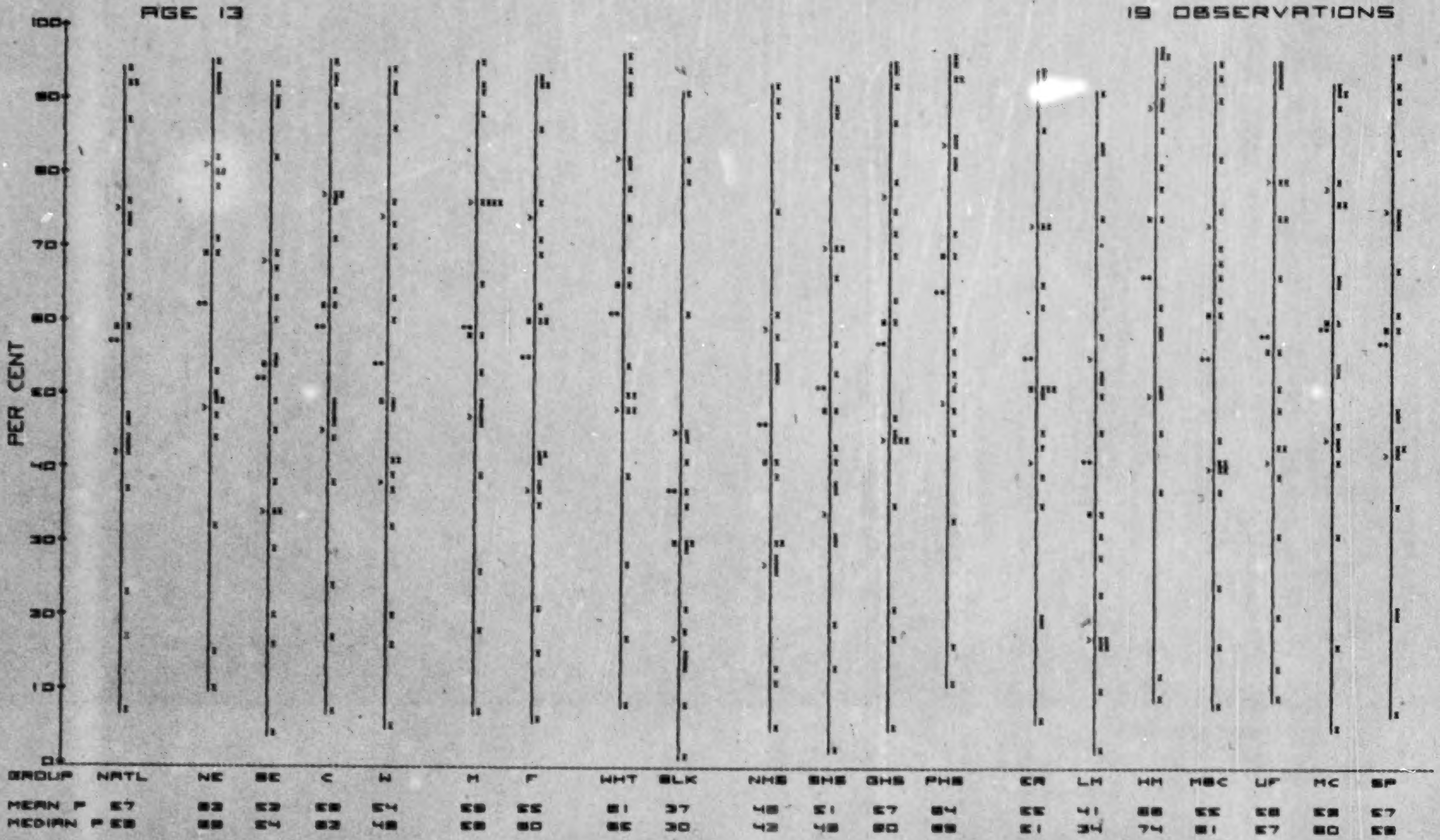
MEASUREMENT

OVERLAP EXERCISES FOR AGES 9 AND 13



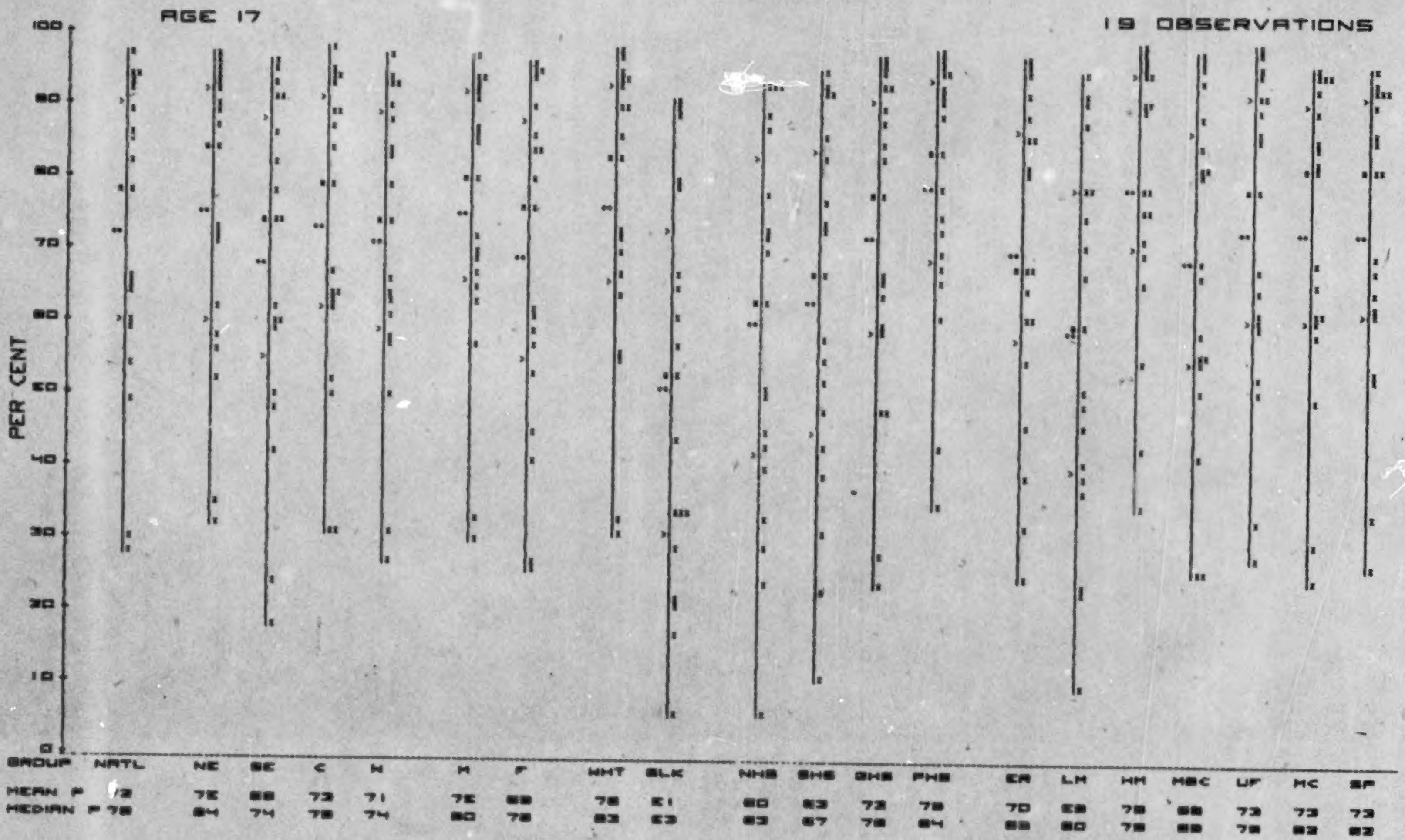
MEASUREMENT

OVERLAP EXERCISES FOR AGES 13 AND 17



MEASUREMENT

OVERLAP EXERCISES FOR AGES 13 AND 17



CHAPTER 4

VARIABLES AND RELATIONSHIPS

The exercises summarized in this chapter deal with the major content area of variables and relationships. The study of variables and relationships provides a foundation for the study of higher mathematics. The exercises from the specific content areas of algebraic expressions, exponents, equations and inequalities, functions and graphs, trigonometry and mathematical logic were combined to produce these summaries. The exercises generally do not go beyond material taught in elementary algebra courses. Although ideas and concepts involving variables and their relationships are taught in the elementary grades, the actual manipulation of variables generally does not begin until students enter prealgebra and algebra courses. Thus, the assessment exercises in this major content area are concentrated upon the 13-year-olds, 17-year-olds and young adults.

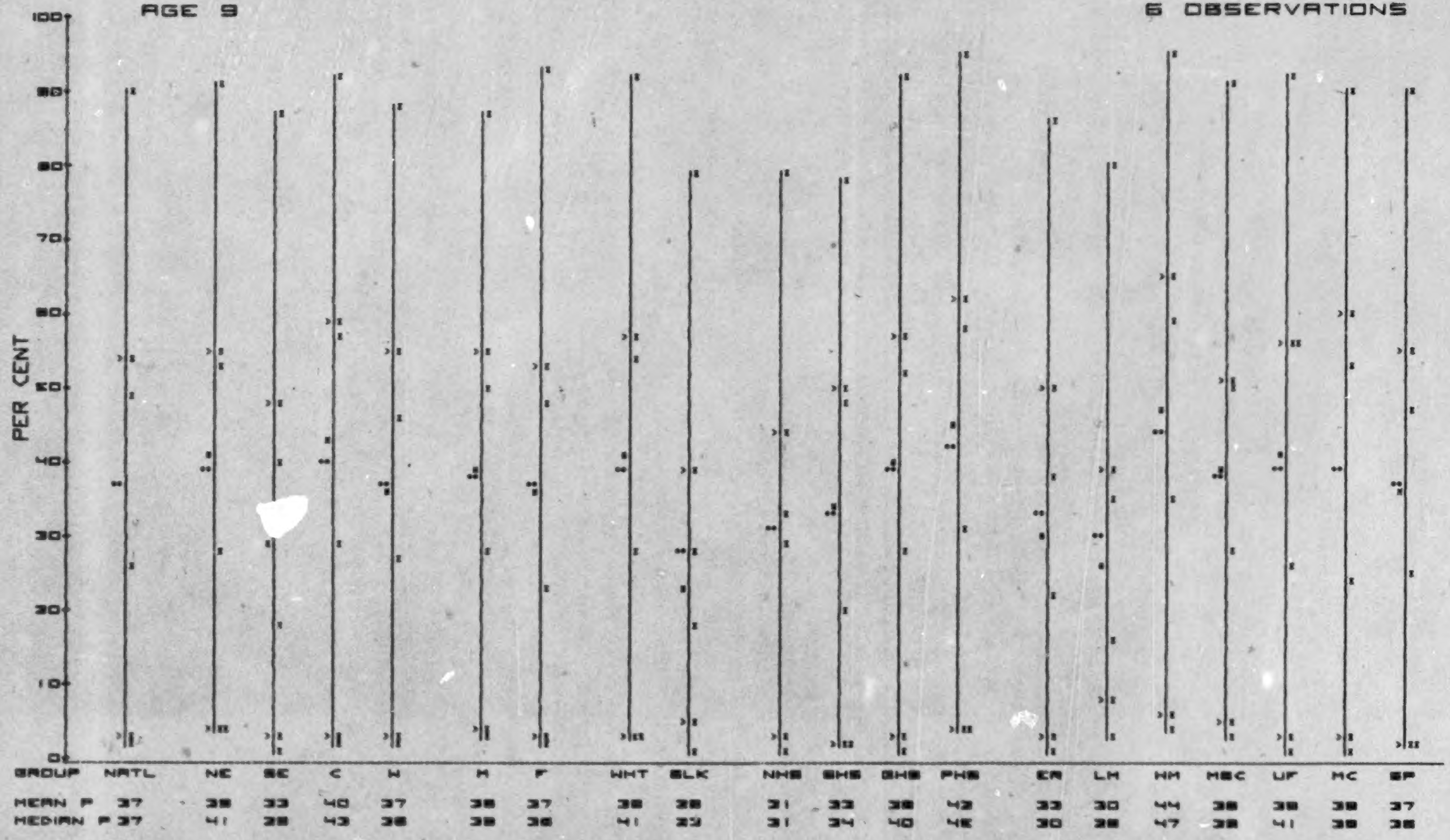
The first section of graphs (immediately following) presents the distribution of percentages (p-values) for the nation and each reporting group on these exercises for each age. Mean p-values are indicated by **; median percentages are indicated by ⧖, and hinge p-values are indicated by >. The format of the graphs is explained in Chapter 2; the reporting-group definitions and standard abbreviations are presented in Chapter 1. Although the National Assessment of Educational Progress feels that a *minimum* of 10 exercises are needed for a reliable summary, the results for the 9-year-olds have been presented here for reader convenience. Caution should be used in interpreting summaries based on less than 10 exercises.

Readers who wish to know the performance of a reporting group on the specific exercises included in the summary will find a list of the exercises in Appendix A that indicates the performance of each group on each exercise or exercise part included in the summary. A "+" sign indicates that the group performed significantly above the national level of performance; a "-" sign indicates that the group performed significantly below the national level of performance on that exercise.

The absence of either sign indicates that there was no significant difference between the performance of the reporting group and that of the nation. To be considered significant, the difference between the group and the nation had to be greater (in absolute value) than twice its standard error. This is approximately equivalent to the .05 level of statistical significance. The contents of specific exercises and the exact results for each reporting group on each exercise may be located in the *Math Technical Report: Exercise Volume*, *Report 04-MA-20* by referring to the exercise-release numbers.

VARIABLES AND RELATIONSHIPS

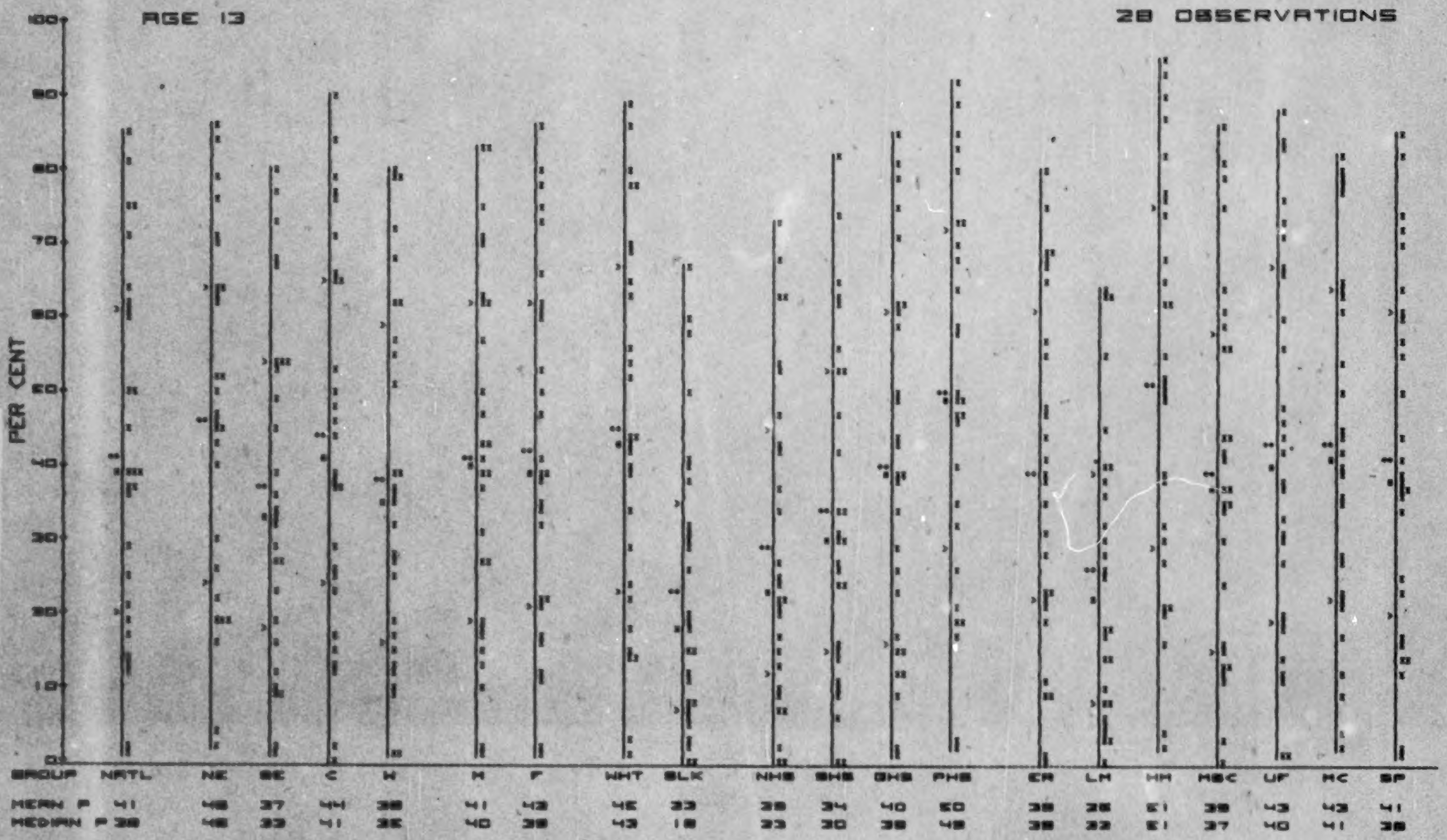
ALL EXERCISES



GROUP	NATL	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	OHS	PHS	ER	LM	HM	MSC	UF	MC	SP
MEAN P	37	39	33	40	37	38	37	39	28	31	33	39	42	33	30	44	38	39	39	37
MEDIAN P	37	41	29	43	36	39	36	41	23	31	34	40	45	30	26	47	39	41	39	36

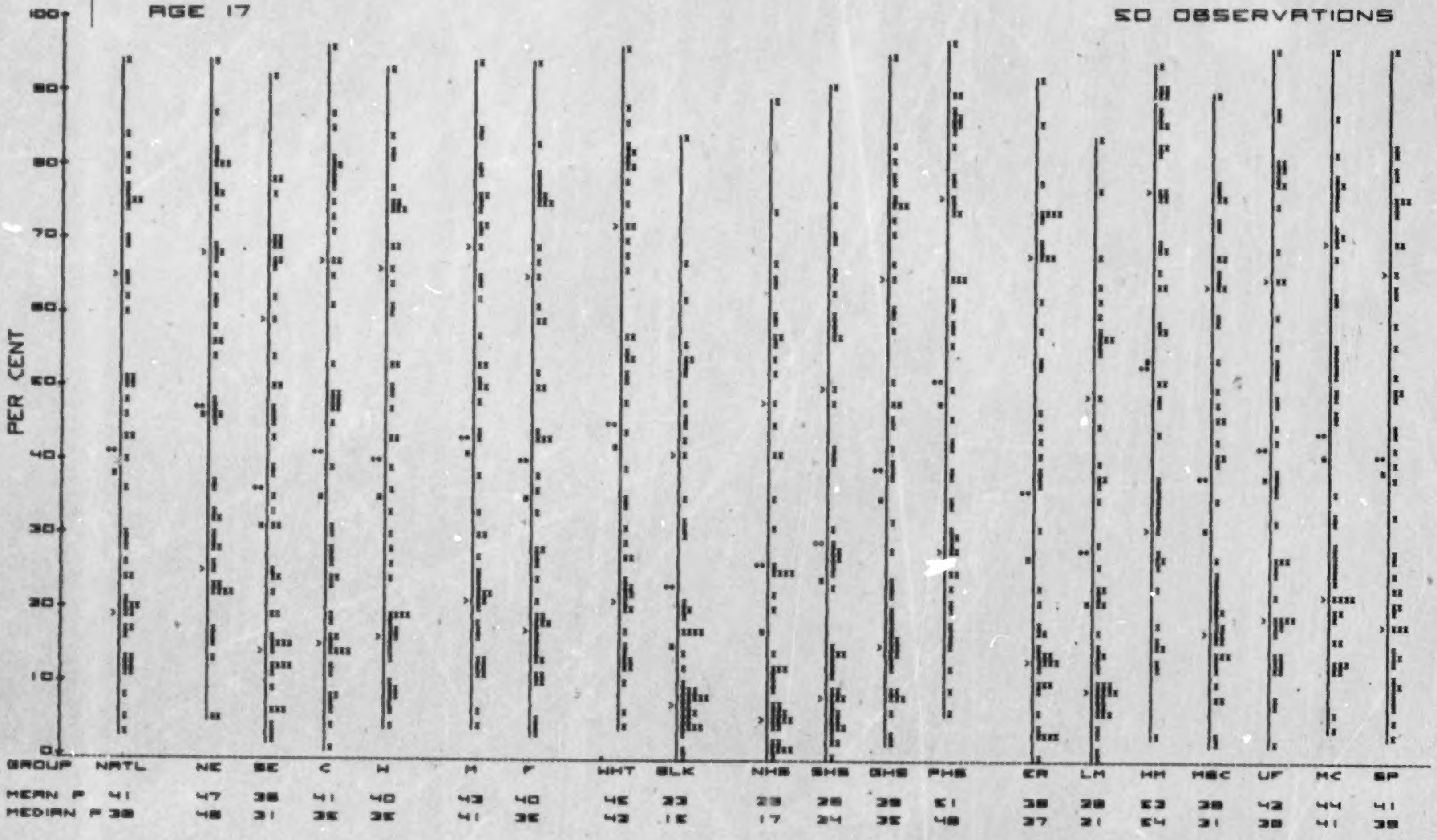
VARIABLES AND RELATIONSHIPS

ALL EXERCISES



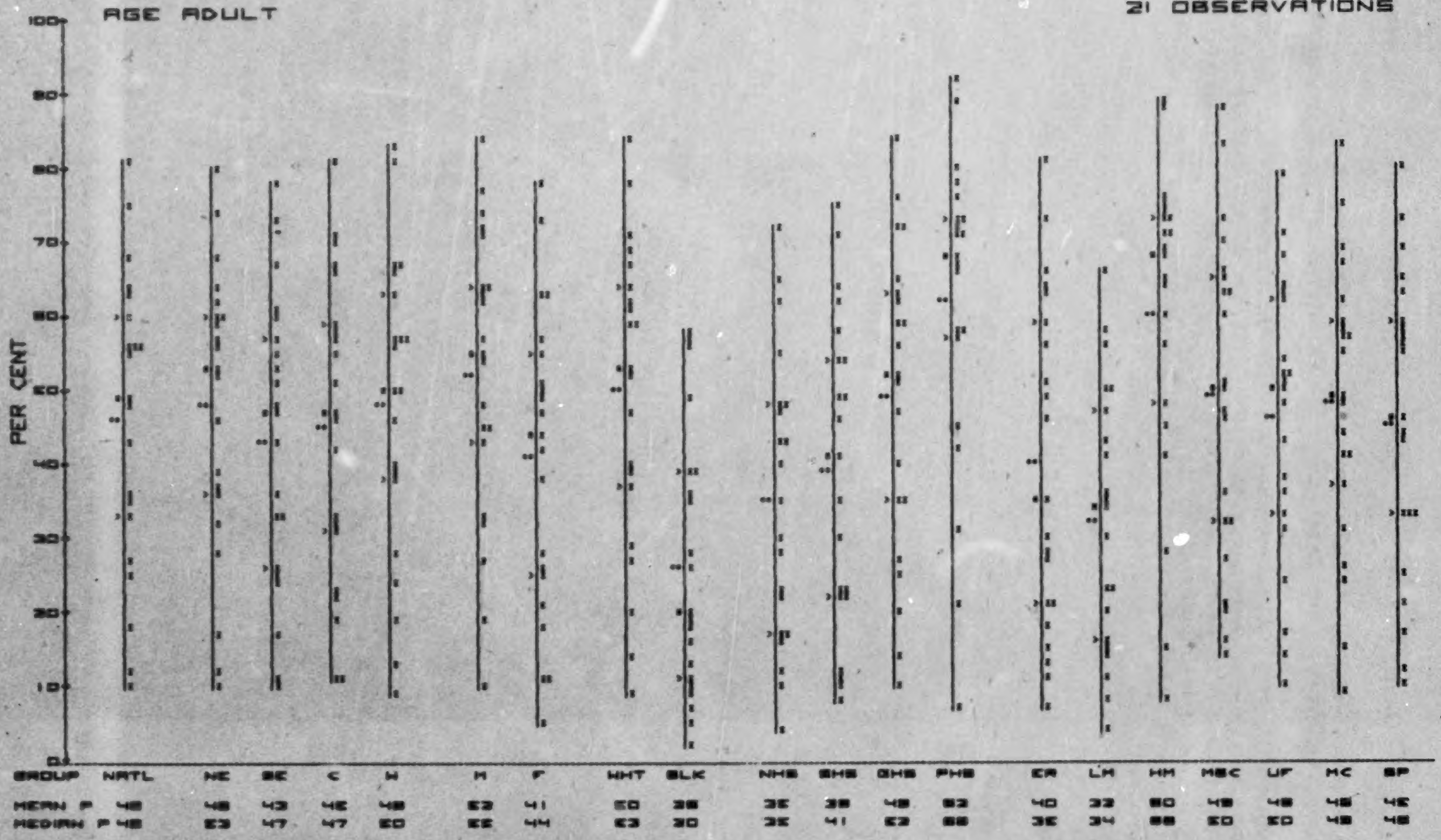
VARIABLES AND RELATIONSHIPS

ALL EXERCISES



VARIABLES AND RELATIONSHIPS

ALL EXERCISES



GROUP	NATL	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MSC	UF	MC	SP
MEAN P	48	46	43	45	48	52	41	50	38	35	38	48	62	40	33	60	49	48	45	45
MEDIAN P	48	53	47	47	50	55	44	53	30	35	41	52	66	35	34	66	50	50	49	46

Overlap Exercises

The following four graphs are to be examined in pairs. The first two graphs present the performance for the nation and the reporting groups on the 24 variables-and-relationships overlap exercises that were administered to 13- and 17-year-olds. The next pair of graphs presents the same information for the 21 overlap exercises administered to 17-year-olds and young adults.

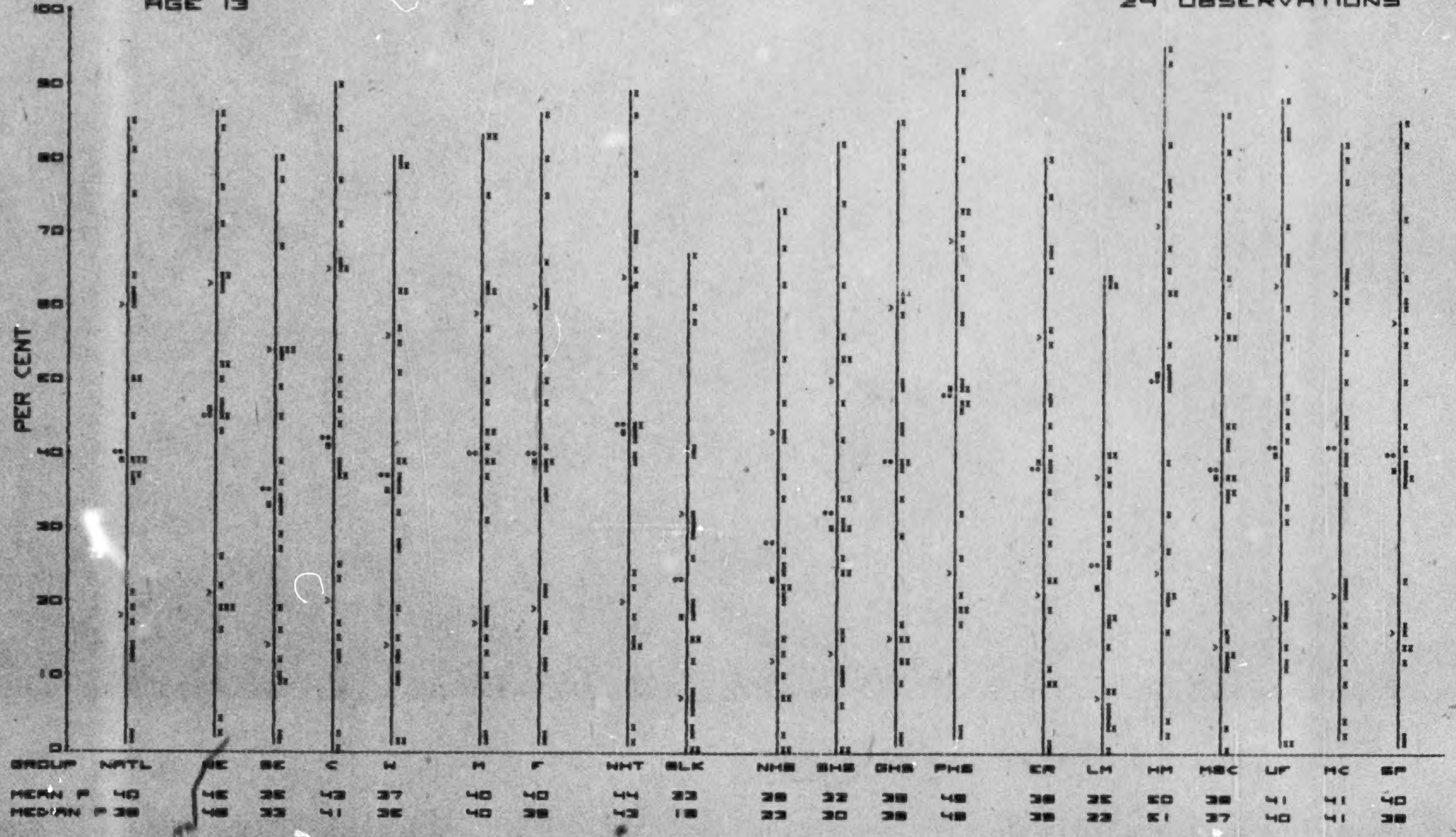
Appendix B provides information on the performance of the reporting groups for each of the exercises included in each of the overlap summaries. Specific information about the content of these exercises and performance of the reporting groups can be found in the *Math Technical Report: Exercise Volume* by using the exercise-release numbers.

VARIABLES AND RELATIONSHIPS

OVERLAP EXERCISES FOR AGES 13 AND 17

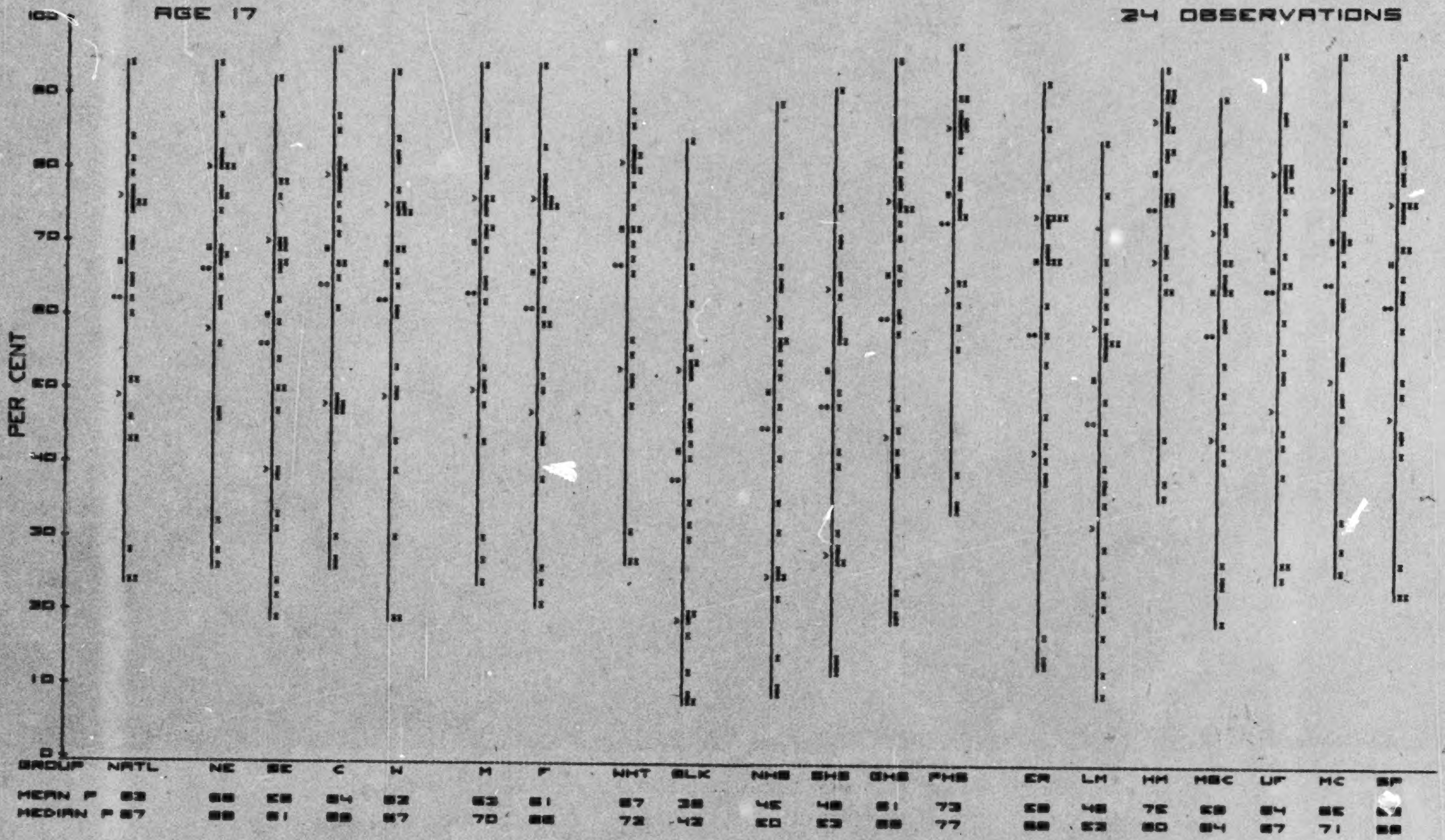
AGE 13

24 OBSERVATIONS



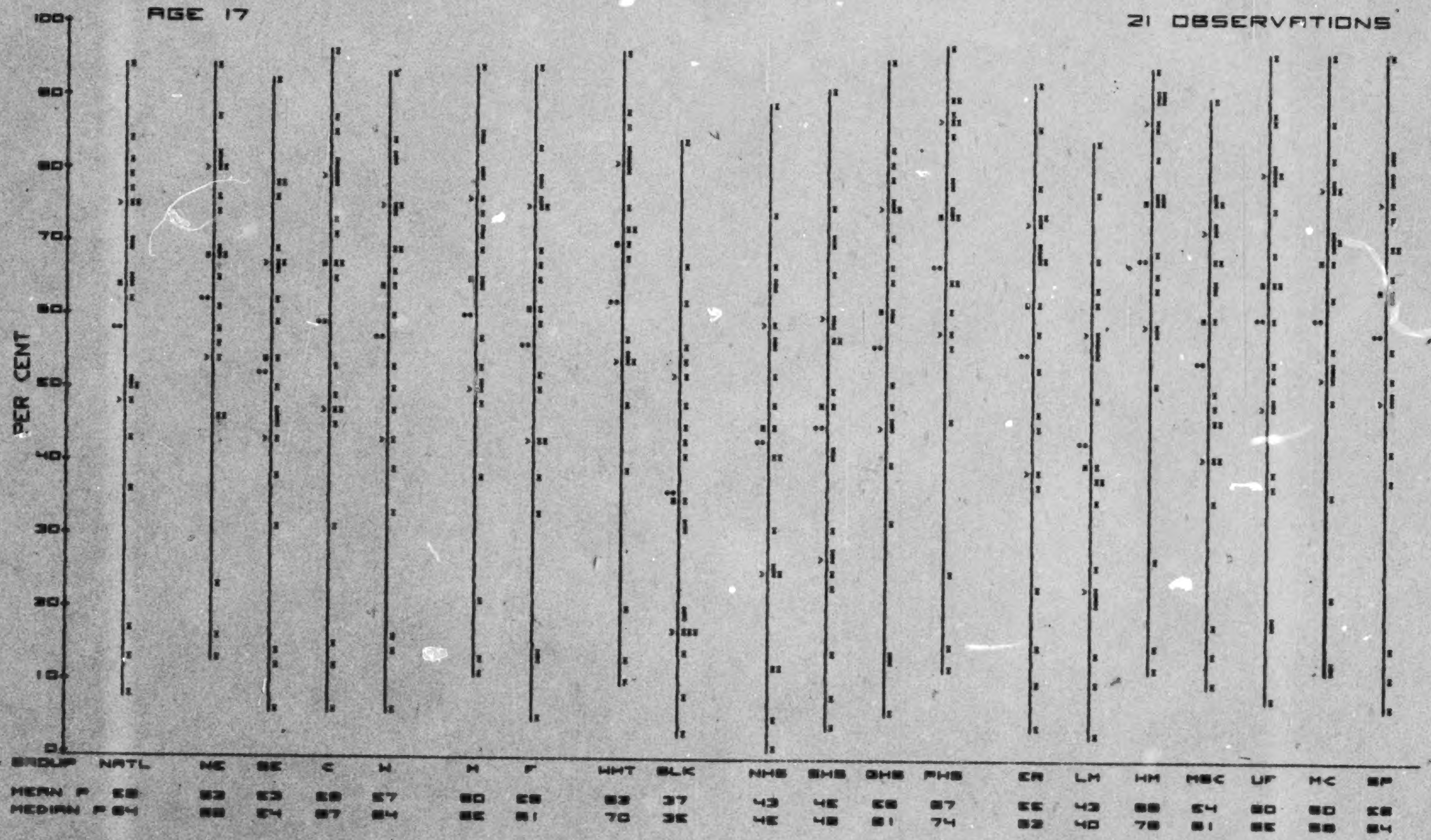
VARIABLES AND RELATIONSHIPS

OVERLAP EXERCISES FOR AGES 13 AND 17



VARIABLES AND RELATIONSHIPS

OVERLAP EXERCISES FOR AGES 17 AND ADULT

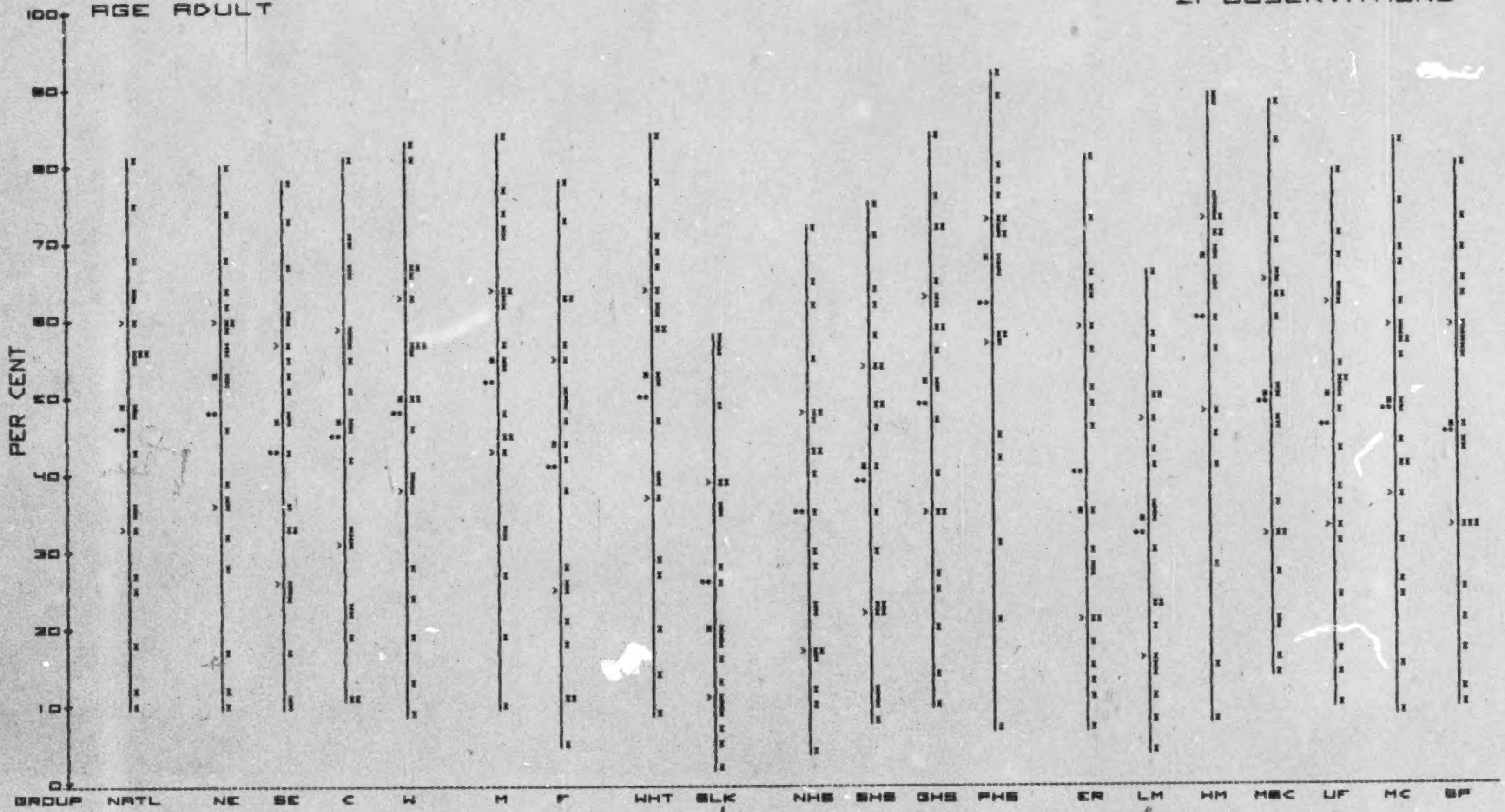


VARIABLES AND RELATIONSHIPS

OVERLAP EXERCISES FOR AGES 17 AND ADULT

AGE ADULT

21 OBSERVATIONS



GROUP	NATL	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
MEAN P	48	48	43	45	48	52	41	50	28	35	39	49	62	40	33	60	48	48	48	45
MEDIAN P	48	53	47	47	50	55	44	53	20	35	41	52	68	35	34	68	50	50	49	48

CHAPTER 5

PROBABILITY AND STATISTICS

The exercises summarized in this chapter deal with the major content area of probability and statistics. Probability concerns the chances of an uncertain event happening. Statistics are generally separated into two categories, descriptive and inferential. Descriptive statistics includes methods of describing large quantities of data; inferential statistics uses concepts of probability to draw conclusions about a large group from a smaller subset or sample of that group. Although probability and statistics are included and discussed many places in school curricula, they generally are not taught as a separate course, except at the postsecondary level. Thus, a limited number of probability-and-statistics exercises were included in the assessment and were concentrated upon the 13-year-olds, 17-year-olds and young adults.

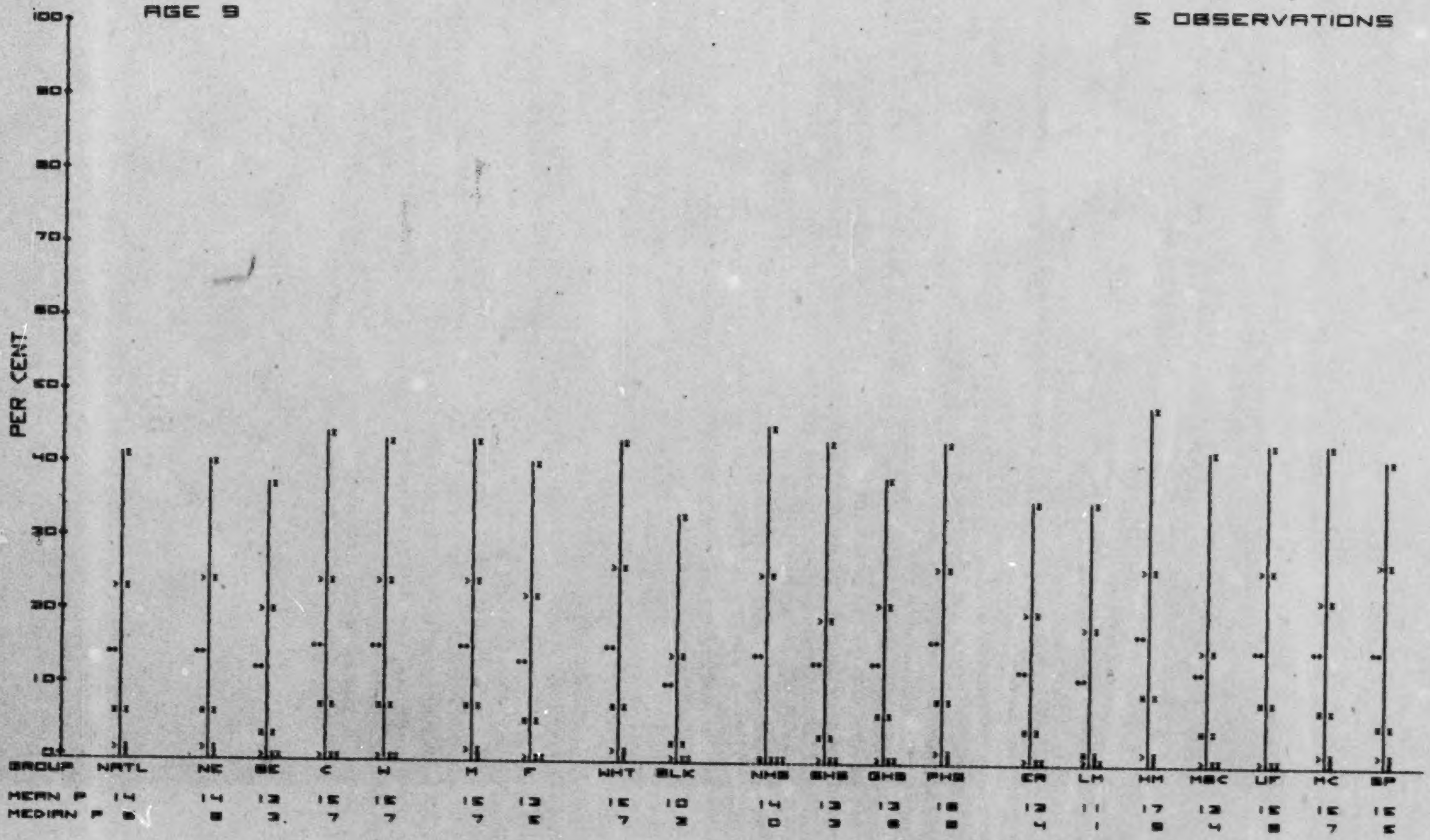
The first section of graphs (immediately following) presents the distribution of percentages (p-values) for the nation and each reporting group on these exercises for each age. Mean p-values are indicated by **; median percentages are indicated by ⨳, and hinge p-values are indicated by >. The format of the graphs is explained in Chapter 2; the reporting-group definitions and standard abbreviations are presented in Chapter 1. Although the National Assessment of Educational Progress feels that a *minimum* of 10 exercises are needed for a reliable summary, the results for the 9-year-olds have been presented here for reader convenience. Caution should be used in interpreting summaries based on less than 10 exercises.

Readers who wish to know the performance of a reporting group on the specific exercises included in the summary will find a list of the exercises in Appendix A that indicates the performance of each group on each exercise or exercise part included in the summary. A "+" sign indicates that the group performed significantly above the national level of performance; a "-" sign indicates that the group performed significantly below the national level of performance on that exercise.

The absence of either sign indicates that there was no significant difference between the performance of the reporting group and that of the nation. To be considered significant, the difference between the group and the nation had to be greater (in absolute value) than twice its standard error. This is approximately equivalent to the .05 level of statistical significance. The contents of specific exercises and the exact results for each reporting group on each exercise may be located in the *Math Technical Report: Exercise Volume, Report 04-MA-20* by referring to the exercise-release numbers.

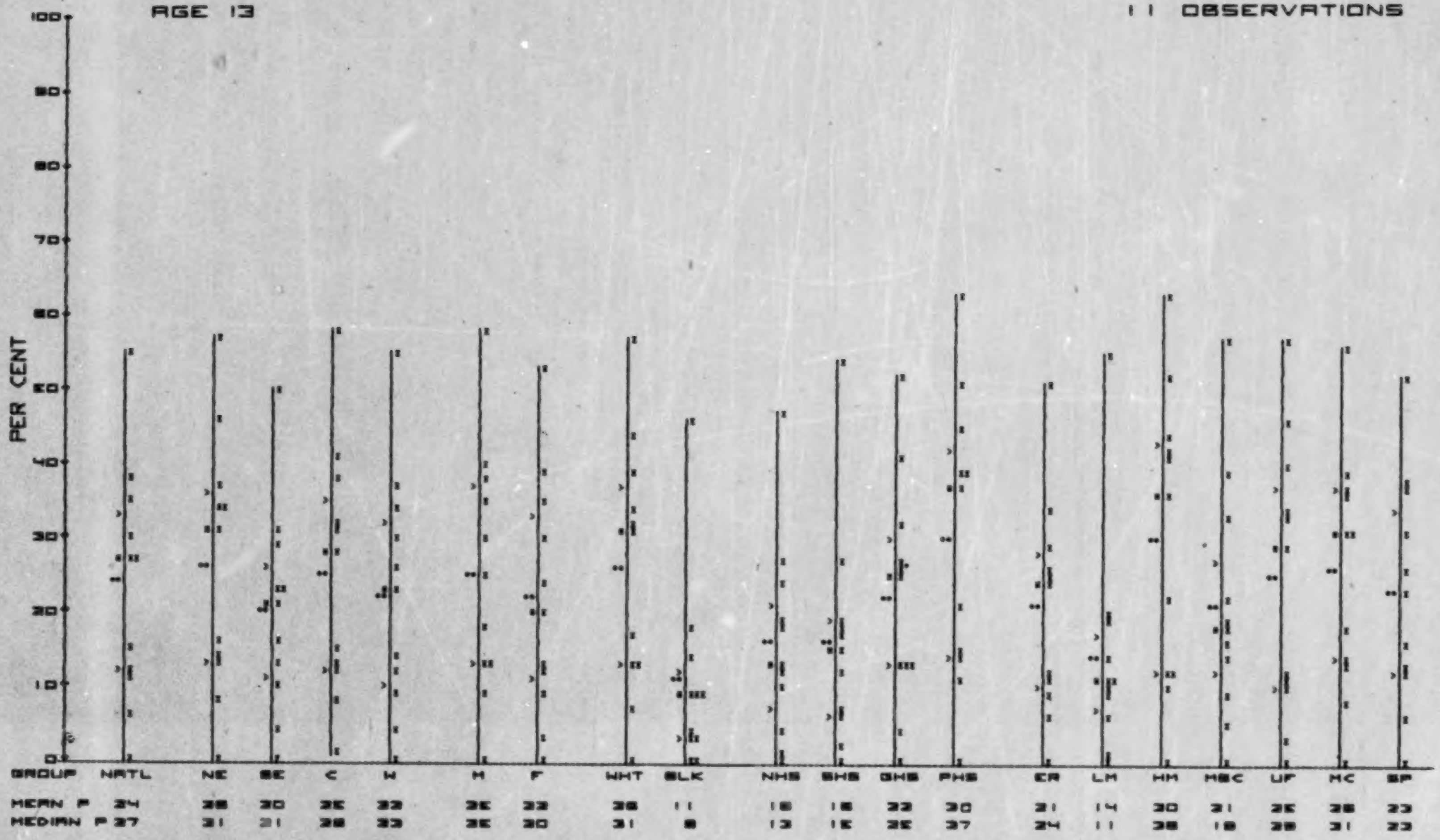
PROBABILITY AND STATISTICS

ALL EXERCISES



PROBABILITY AND STATISTICS

ALL EXERCISES

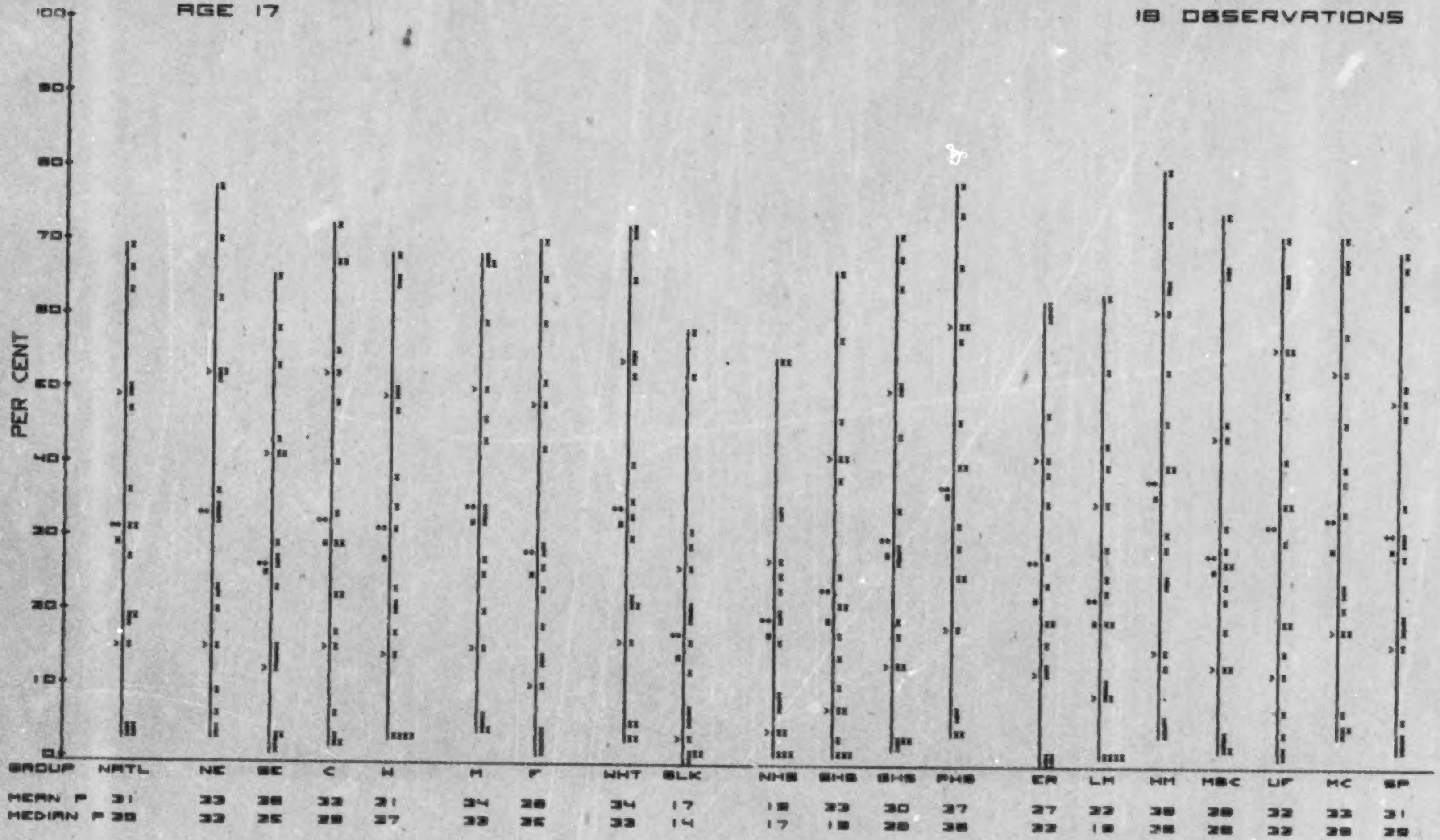


PROBABILITY AND STATISTICS

ALL EXERCISES

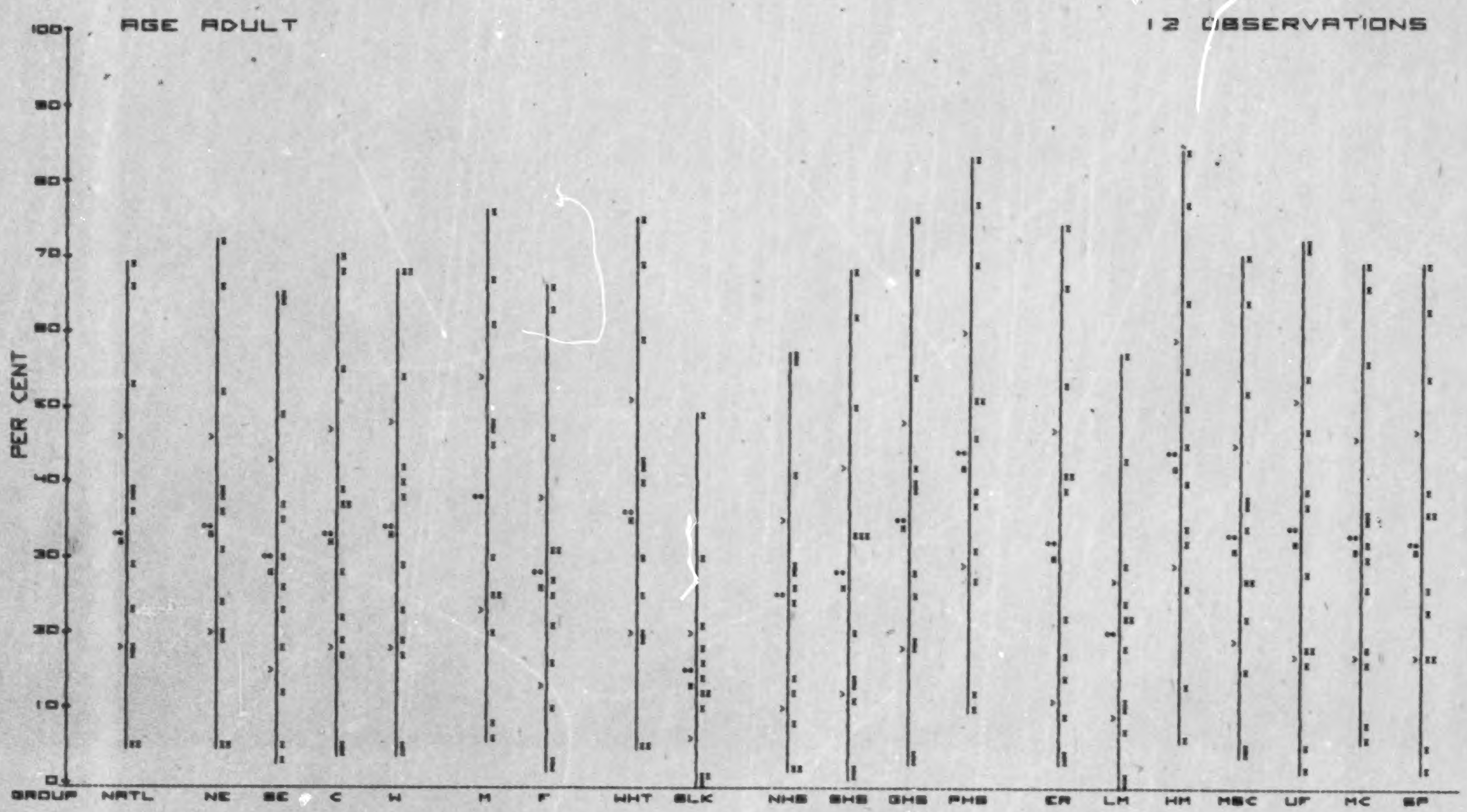
AGE 17

18 OBSERVATIONS



PROBABILITY AND STATISTICS

ALL EXERCISES



GROUP	NATL	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MSC	UF	MC	SP
MEAN P	33	34	30	33	34	38	28	36	15	25	28	35	44	32	20	44	33	34	33	32
MEDIAN P	33	33	28	32	33	38	28	35	13	25	26	34	42	30	20	42	31	32	31	31

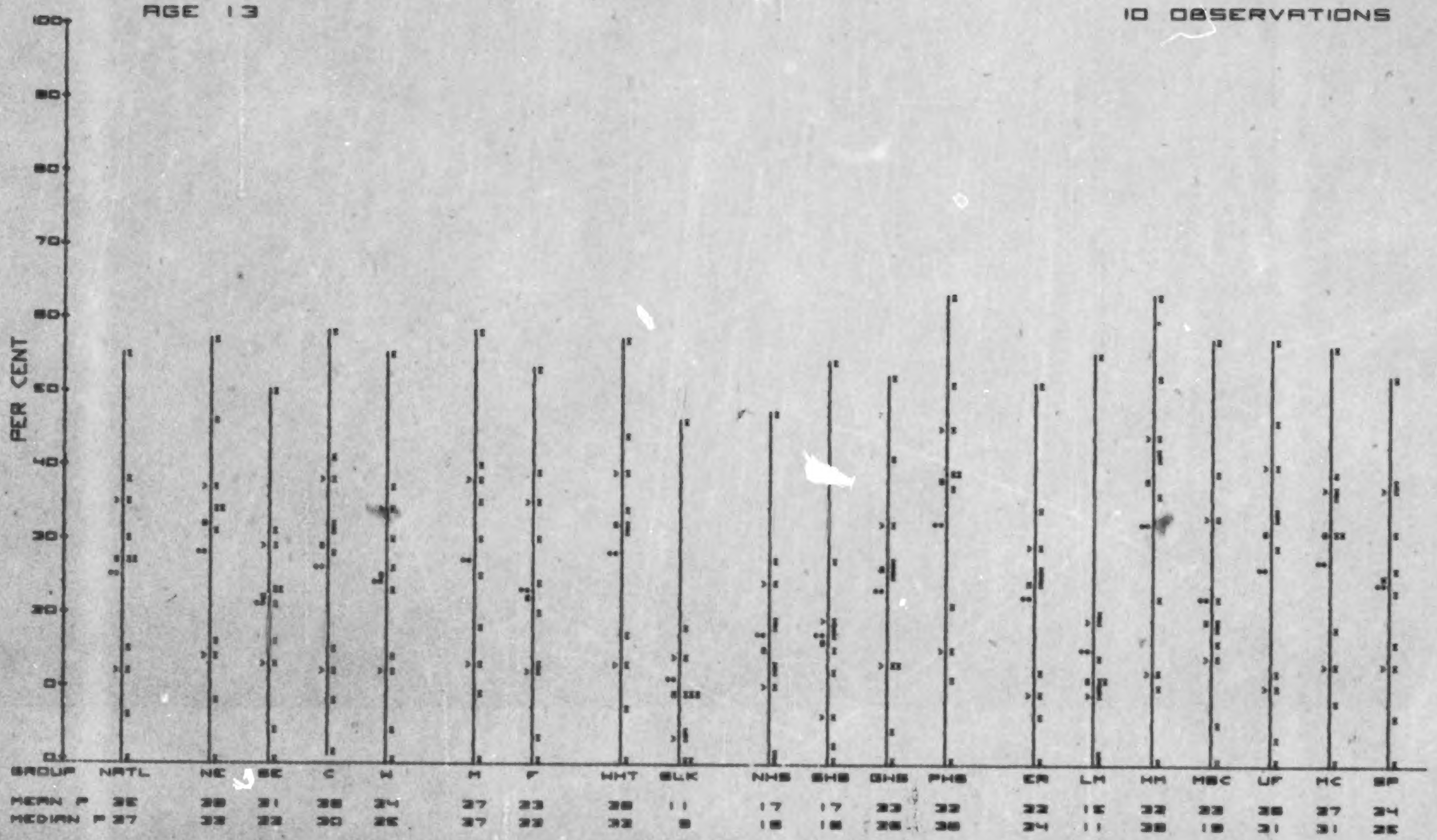
Overlap Exercises

The following four graphs are to be examined in pairs. The first two graphs present the performance for the nation and the reporting groups on the 10 probability-and-statistics overlap exercises that were administered to 13- and 17-year-olds. The next pair of graphs presents the same information for the 12 overlap exercises administered to 17-year-olds and adults.

Appendix B provides information on the performance of the reporting groups for each of the exercises included in each of the overlap summaries. Specific information about the content of these exercises and performance of the reporting groups can be found in the *Math Technical Report: Exercise Volume* by using the exercise-release numbers.

PROBABILITY AND STATISTICS

OVERLAP EXERCISES FOR AGES 13 AND 17

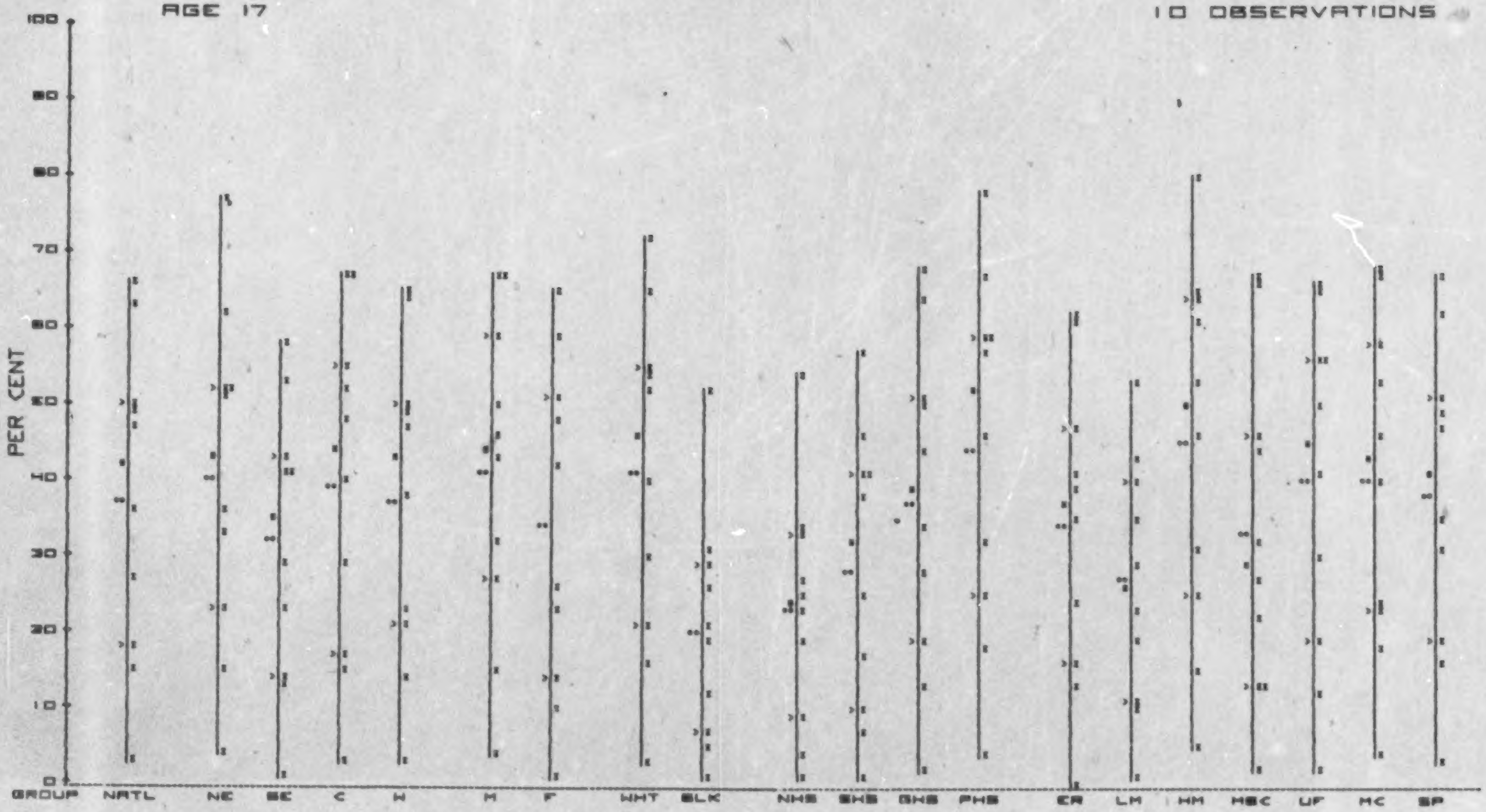


PROBABILITY AND STATISTICS

OVERLAP EXERCISES FOR AGES 13 AND 17.

AGE 17

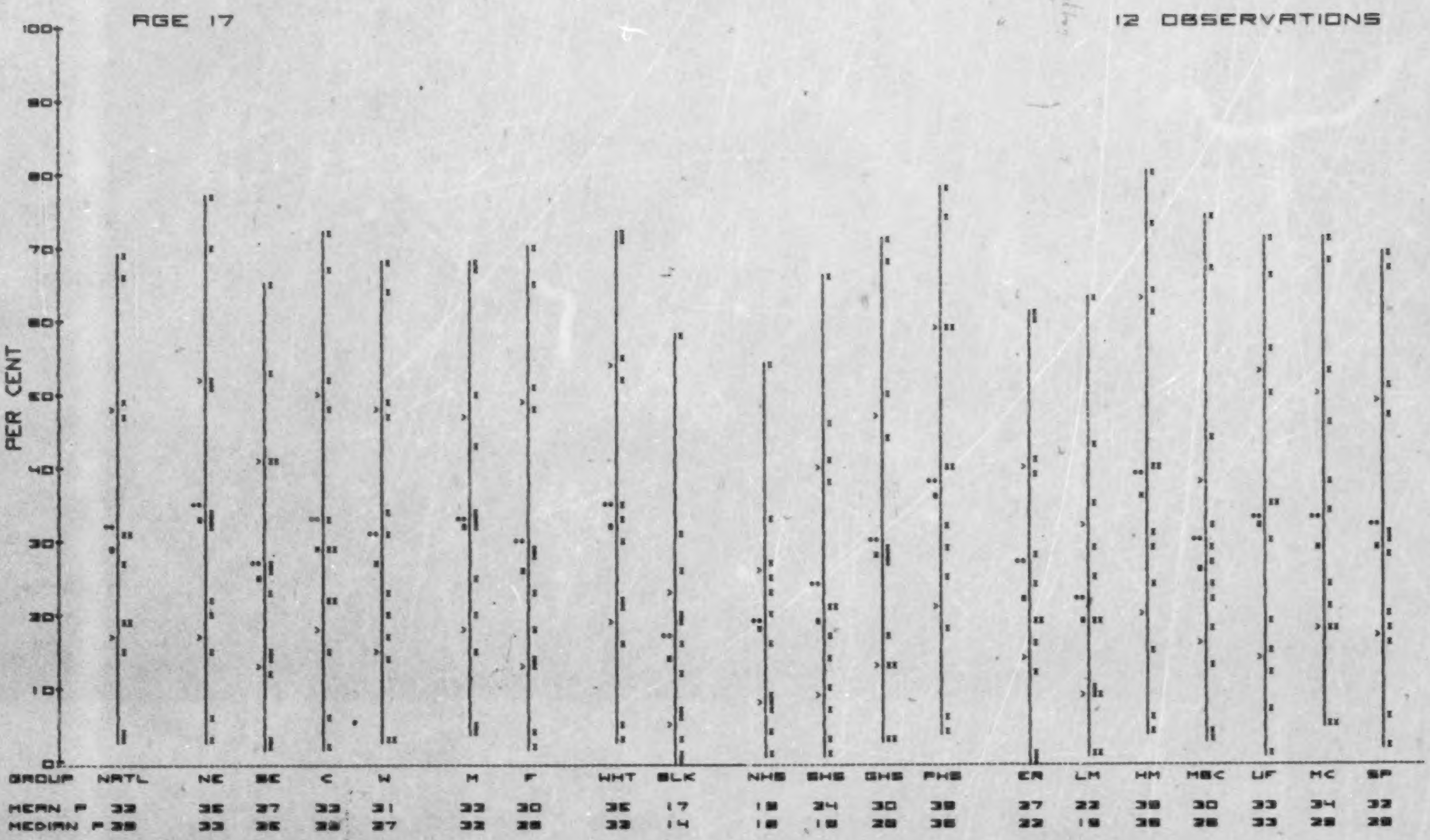
10 OBSERVATIONS



GROUP	NATL	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	CR	LM	HM	MBC	UF	MC	SP
MEAN P	38	40	32	38	37	41	34	41	20	23	28	37	44	34	27	45	33	40	40	38
MEDIAN P	42	43	35	44	43	45	34	46	20	24	32	38	52	37	28	50	29	45	43	41

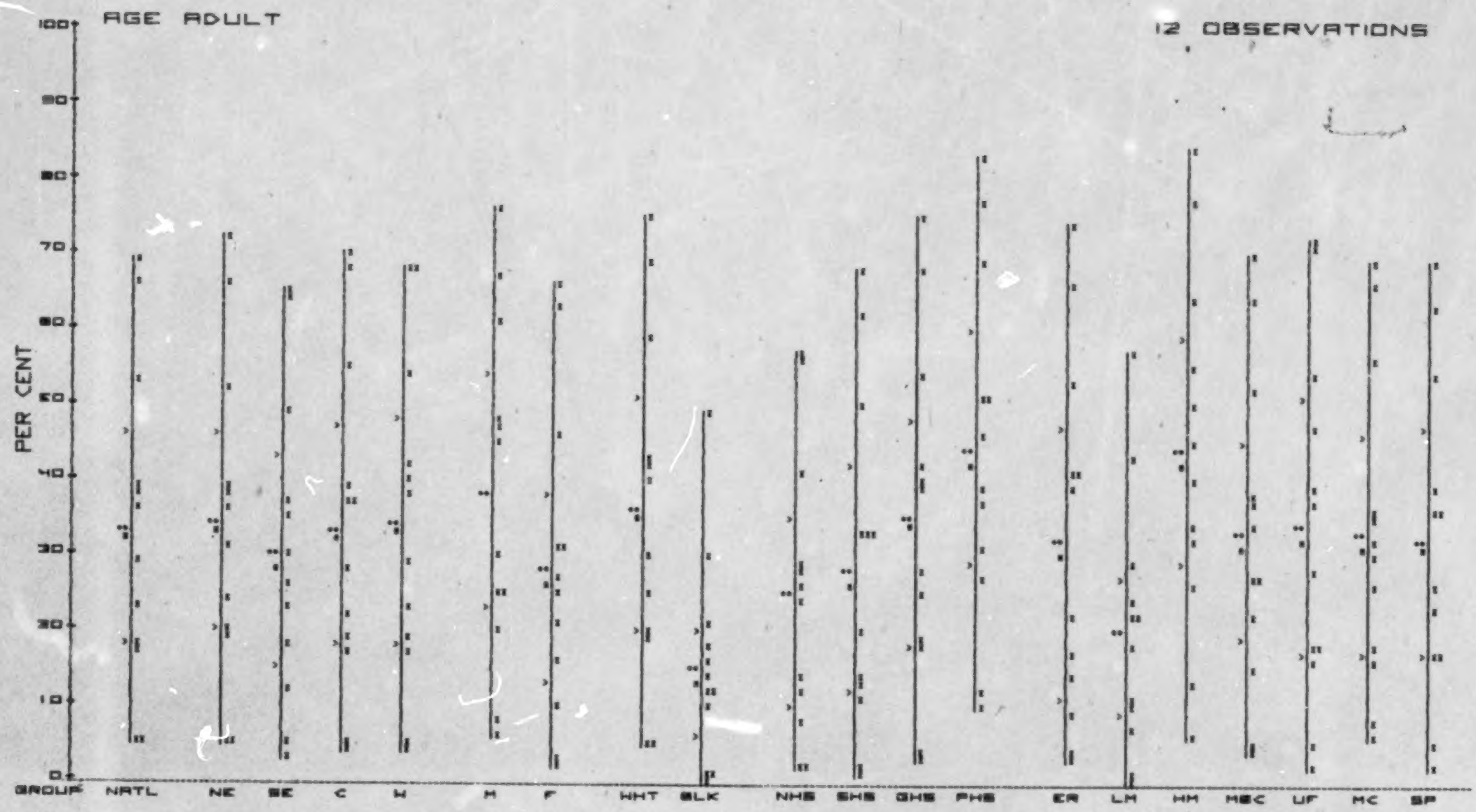
PROBABILITY AND STATISTICS

OVERLAP EXERCISES FOR AGES 17 AND ADULT



PROBABILITY AND STATISTICS

OVERLAP EXERCISES FOR AGES 17 AND ADULT



GROUP	NATL	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
MEAN P	33	34	31	34	34	38	28	38	15	25	28	35	44	32	20	44	33	34	33	32
MEDIAN P	32	33	28	32	34	38	28	35	13	25	27	34	42	30	20	42	31	32	31	31

CHAPTER 6

GEOMETRY

The exercises summarized in this chapter deal with the major content area of geometry. Geometry in the primary grades consists mainly of learning the names of various shapes and figures and understanding the concept of two- and three-dimensional space. Students in the upper elementary grades apply formulas to calculate perimeter, area and volume. They also use instruments such as a straightedge, compass and protractor to construct and measure geometric figures. Secondary school students may or may not study geometry further depending on the mathematics courses they elect to take. The National Assessment of Educational Progress concentrated its geometry exercises on the informal geometry encountered prior to formal geometry courses. Thus, no geometric proofs were included and few exercises required skills from a formal geometry course.

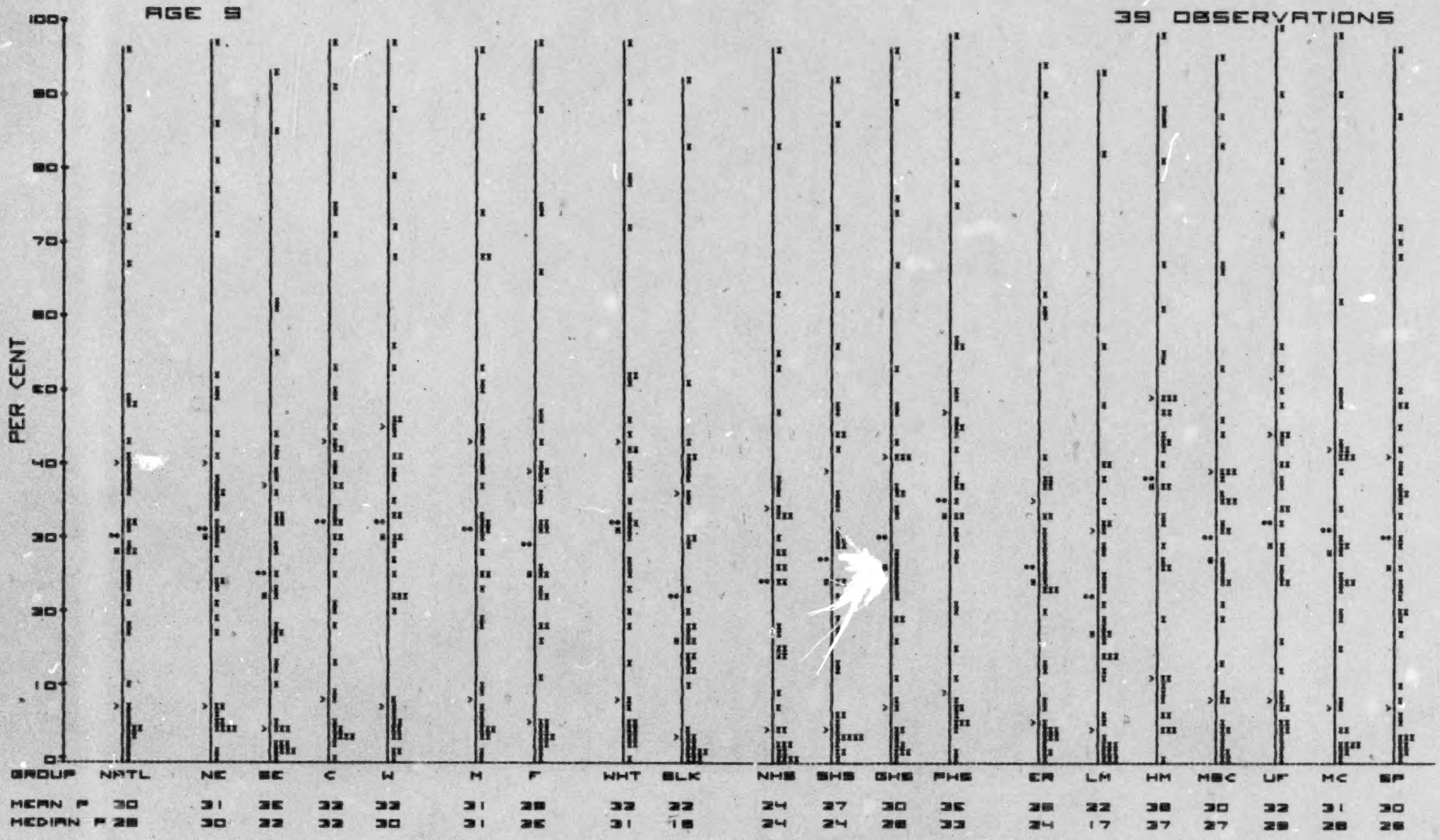
The first section of graphs (immediately following) presents the distribution of percentages (p-values) for the nation and each reporting group on these exercises for each age. Mean p-values are indicated by **; median percentages are indicated by ⪤, and hinge p-values are indicated by >. The format of the graphs is explained in Chapter 2; the reporting-group definitions and standard abbreviations are presented in Chapter 1.

Readers who wish to know the performance of a reporting group on the specific exercises included in the summary will find a list of the exercises in Appendix A that indicates the performance of each group on each exercise or exercise part included in the summary. A "+" sign indicates that the group performed significantly above the national level of performance; a "-" sign indicates that the group performed significantly below the national level of performance on that exercise.

The absence of either sign indicates that there was no significant difference between the performance of the reporting group and that of the nation. To be considered significant, the difference between the group and the nation had to be greater (in absolute value) than twice its standard error. This is approximately equivalent to the .05 level of statistical significance. The contents of specific exercises and the exact results for each reporting group on each exercise may be located in the *Math Technical Report: Exercise Volume, Report 04-MA-20* by referring to the exercise-release numbers.

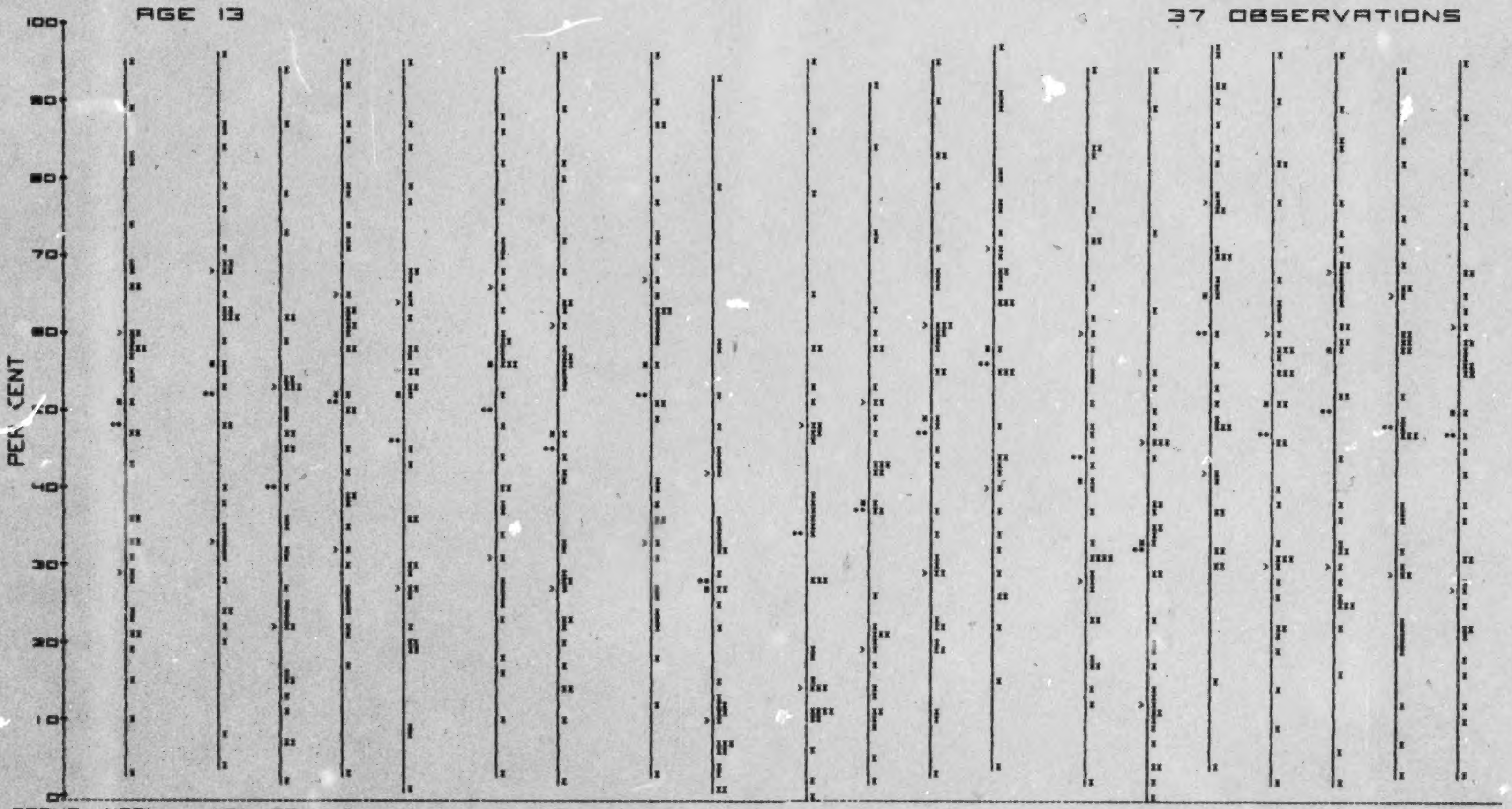
GEOMETRY

ALL EXERCISES



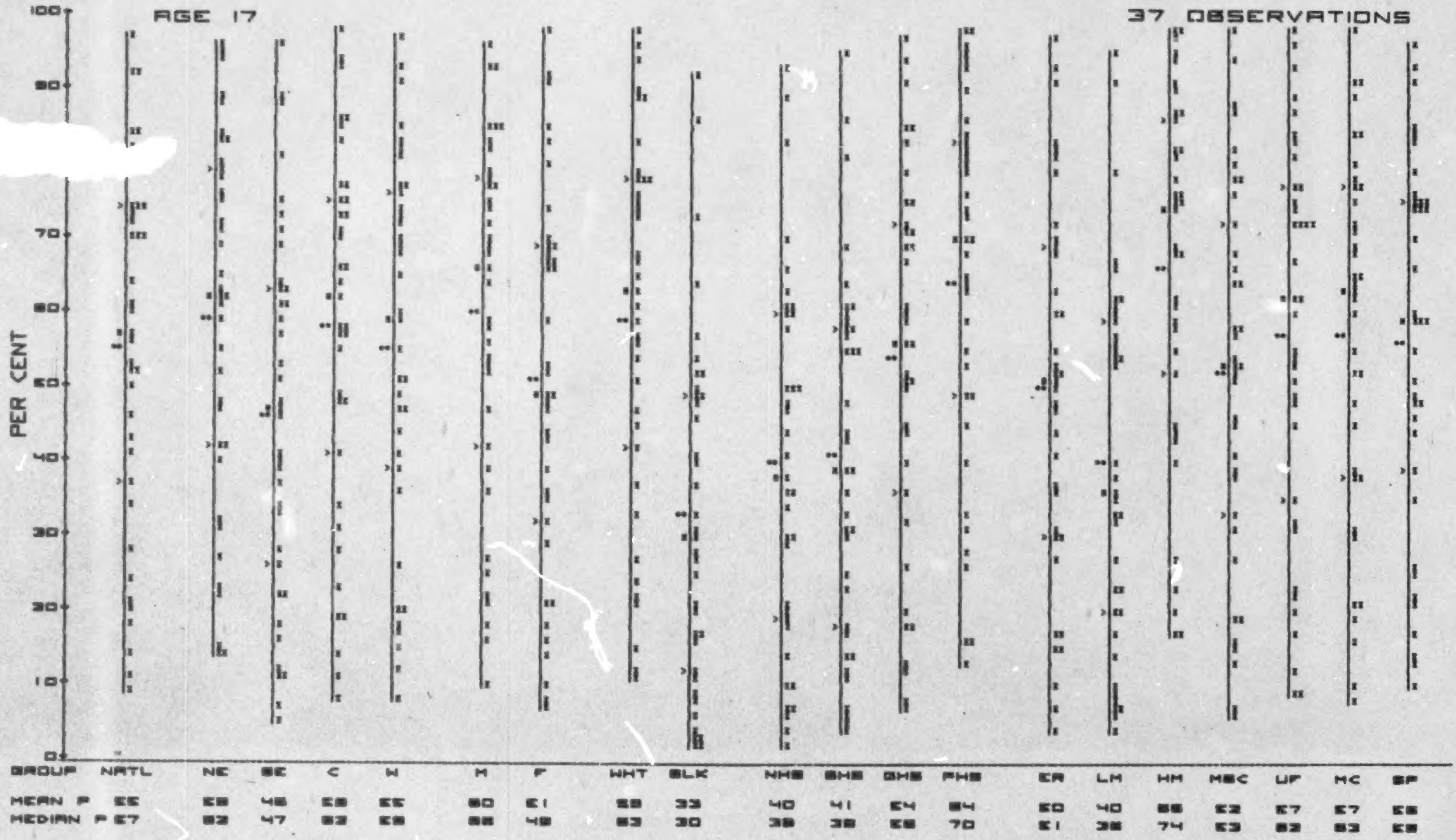
GEOMETRY

ALL EXERCISES



GROUP	NATL	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MSC	UF	MC	SP
MEAN P	48	53	40	51	48	50	45	53	28	34	37	47	56	44	32	60	47	50	48	47
MEDIAN P	51	56	40	53	53	58	47	58	37	34	38	48	56	41	33	65	51	58	48	50

GEOMETRY
ALL EXERCISES

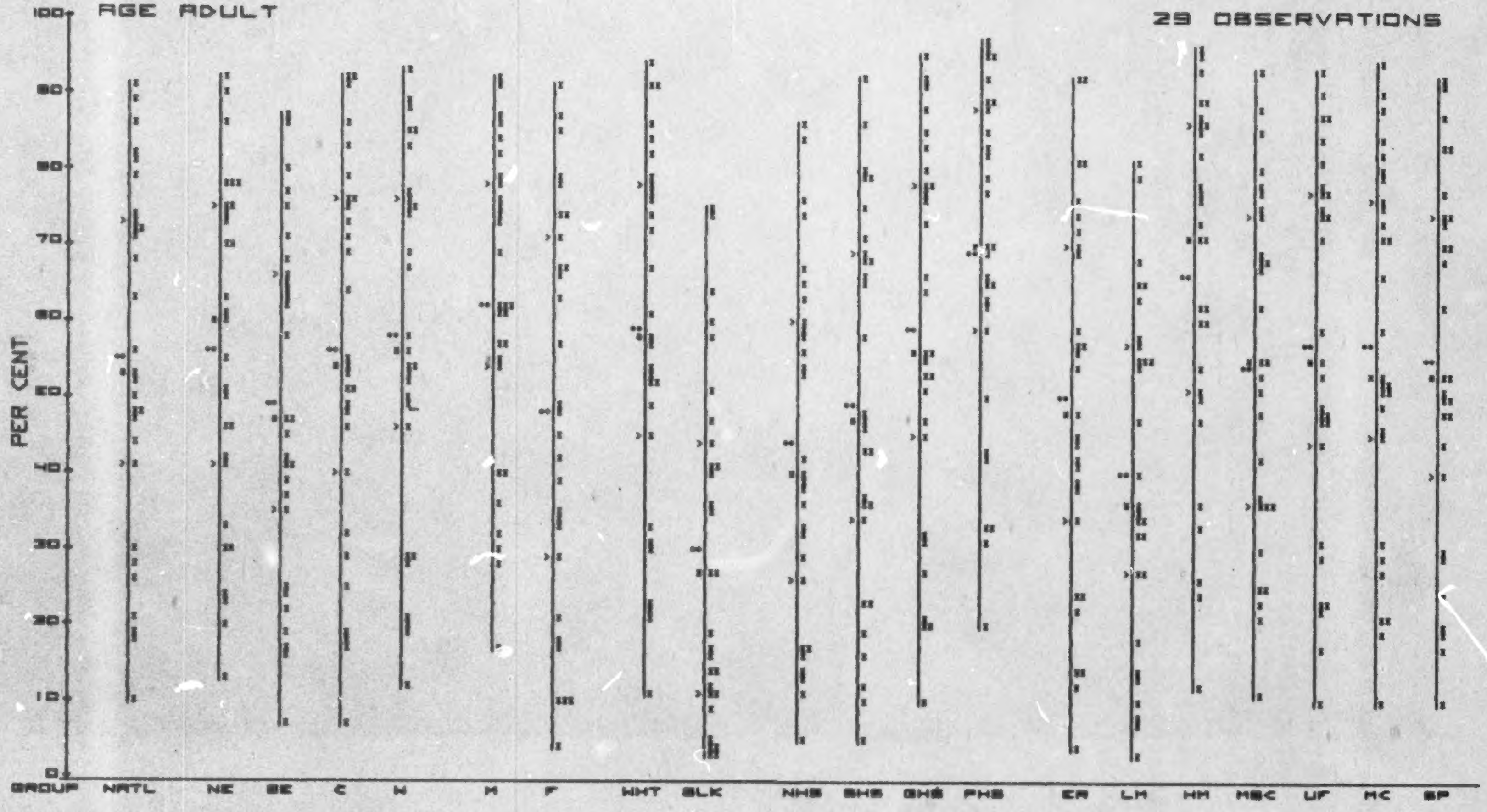


GEOMETRY

ALL EXERCISES

AGE ADULT

29 OBSERVATIONS



GROUP	NATL	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
MEAN P	55	58	48	56	58	63	48	58	30	44	48	58	69	50	40	68	54	57	57	55
MEDIAN P	53	60	47	54	56	63	48	58	37	40	47	58	70	48	38	71	55	55	53	53

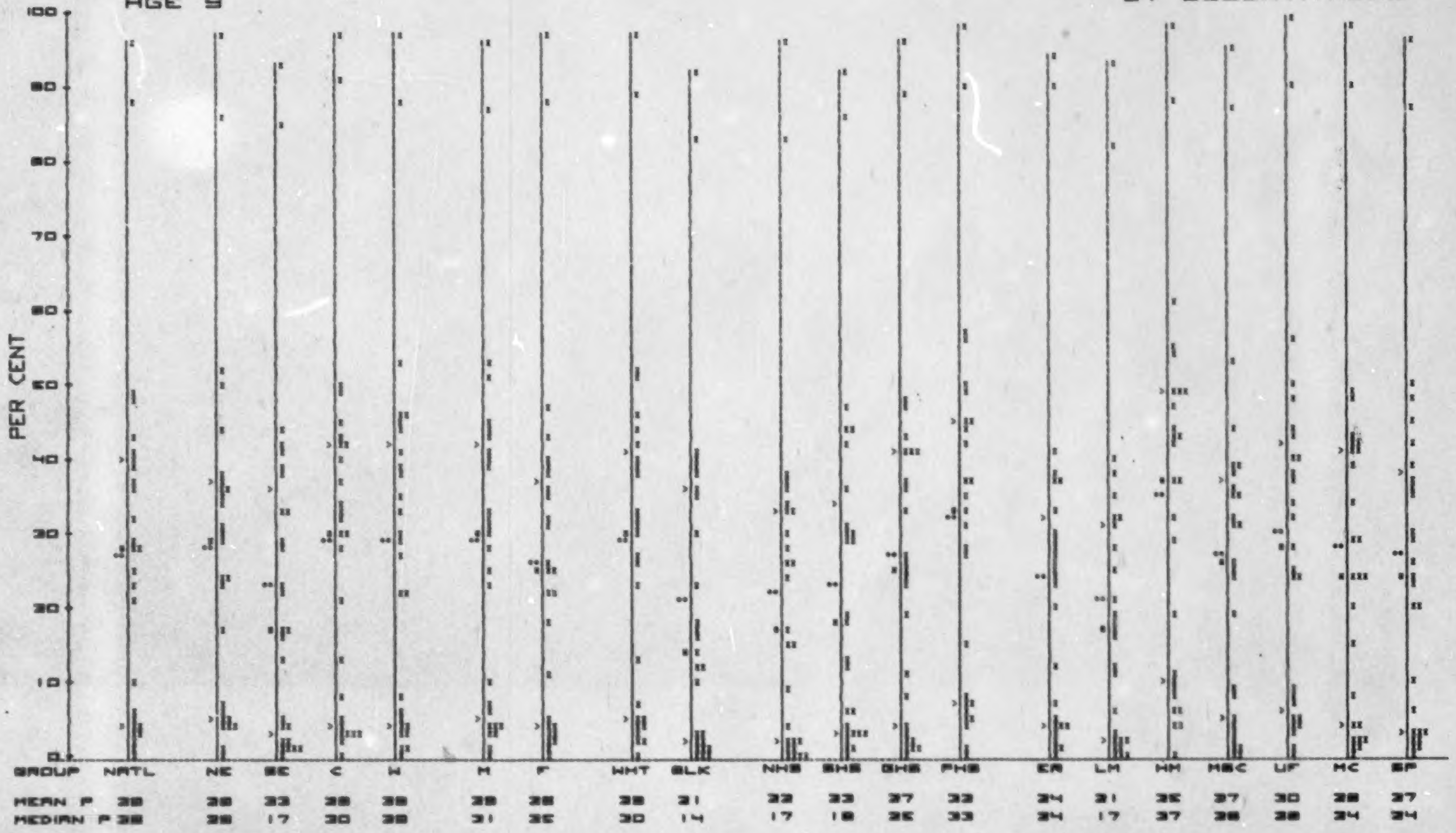
Overlap Exercises

The following six graphs are to be examined in pairs. The first two graphs present the performance for the nation and the reporting groups on the 27 geometry overlap exercises administered to 9- and 13-year-olds. The next pair of graphs presents the same information for the 29 overlap exercises administered to 13- and 17-year-olds. The final two graphs in this chapter provide the results for the 29 overlap exercises administered to the 17-year-olds and adults.

Appendix B provides information on the performance of the reporting groups for each of the exercises included in each of the overlap summaries. Specific information about the content of these exercises and performance of the reporting groups can be found in the *Math Technical Report: Exercise Volume* by using the exercise-release numbers.

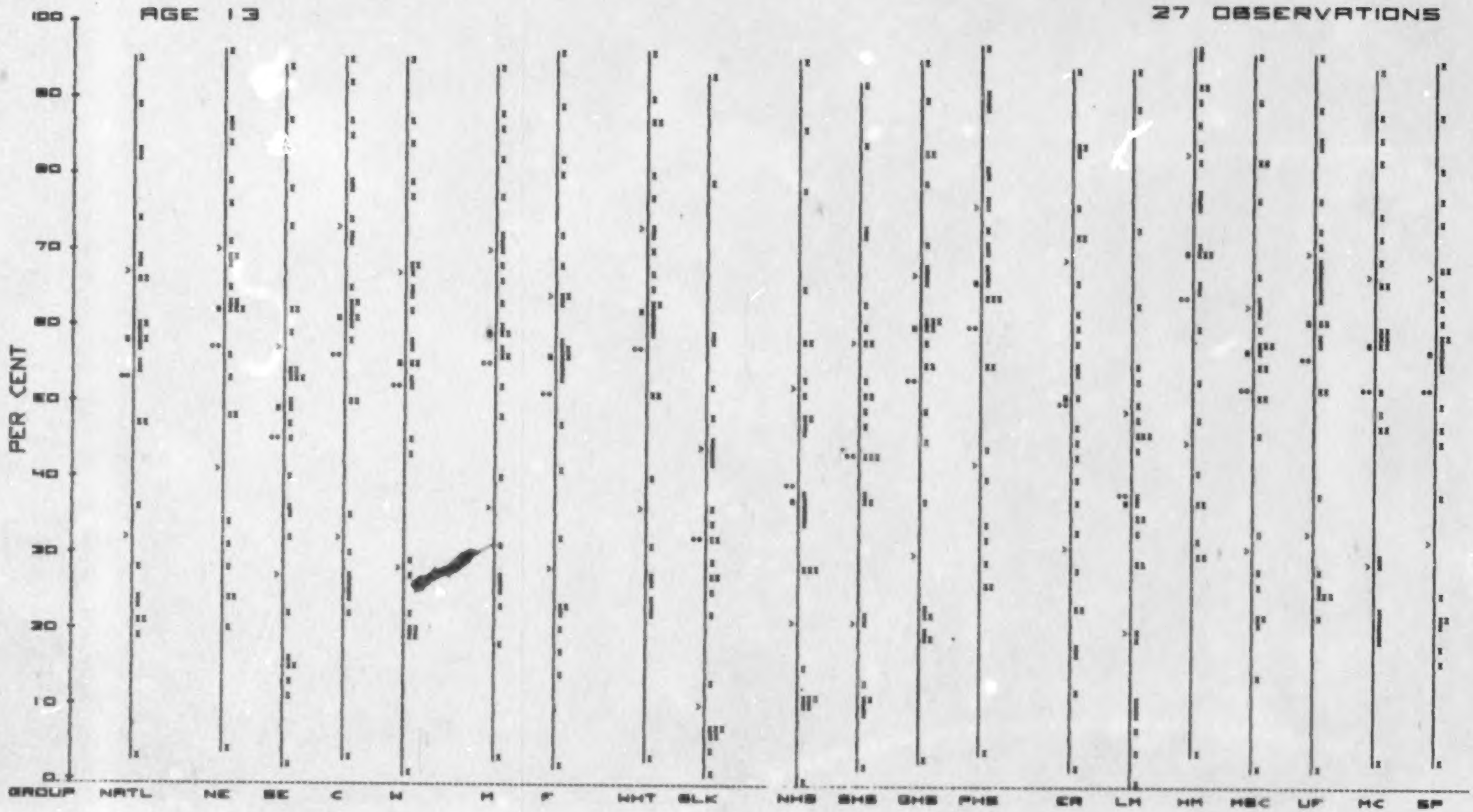
GEOMETRY

OVERLAP EXERCISES FOR AGES 9 AND 13



GEOMETRY

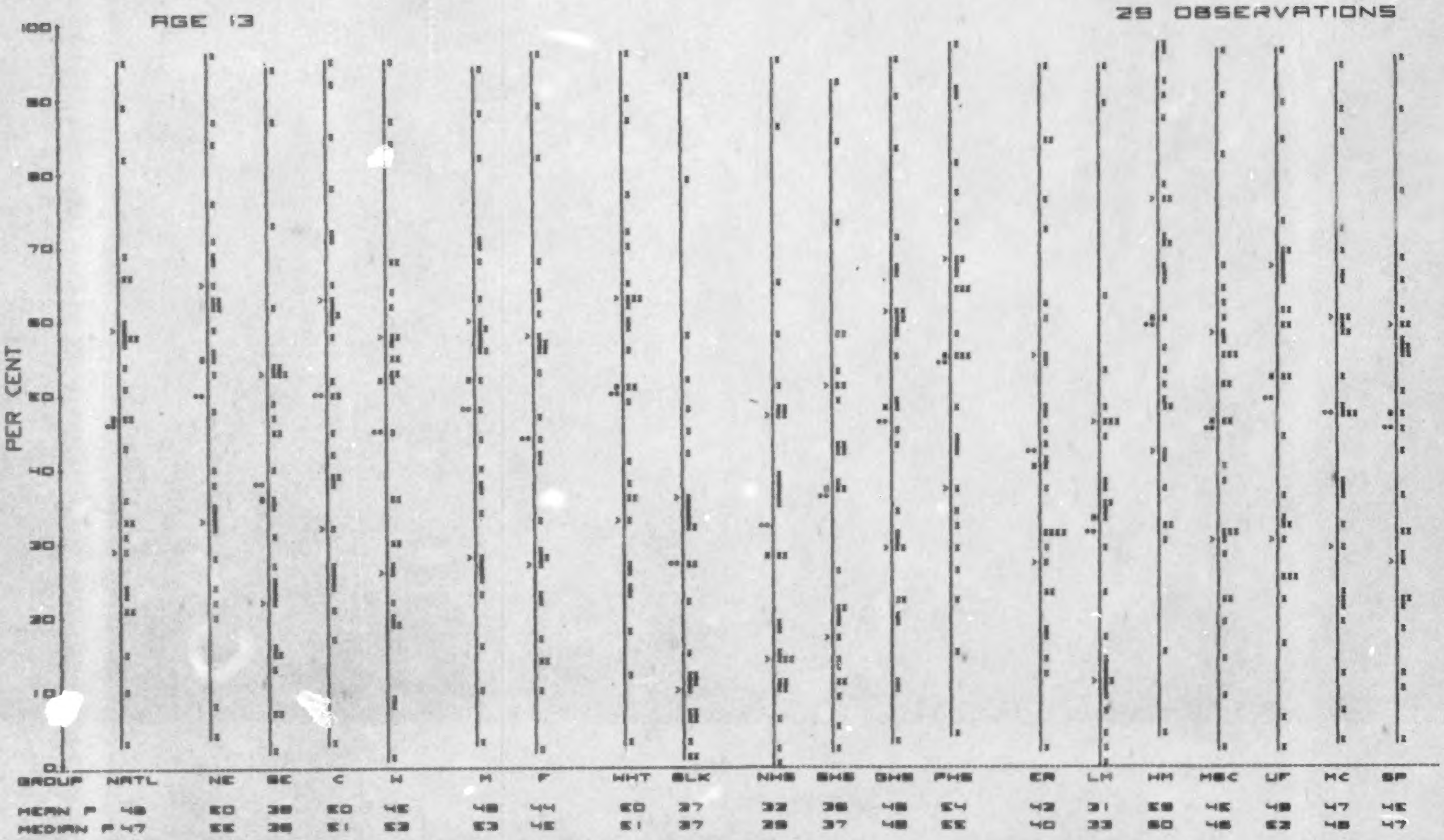
OVERLAP EXERCISES FOR AGES 9 AND 13



GROUP	NATL	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	OHS	PHS	ER	LM	HM	MSC	UF	MC	SP
MEAN P	53	57	45	56	52	55	51	57	32	38	43	53	60	50	38	64	52	56	52	52
MEDIAN P	58	62	48	61	55	58	56	62	32	37	43	60	66	51	37	70	57	61	58	57

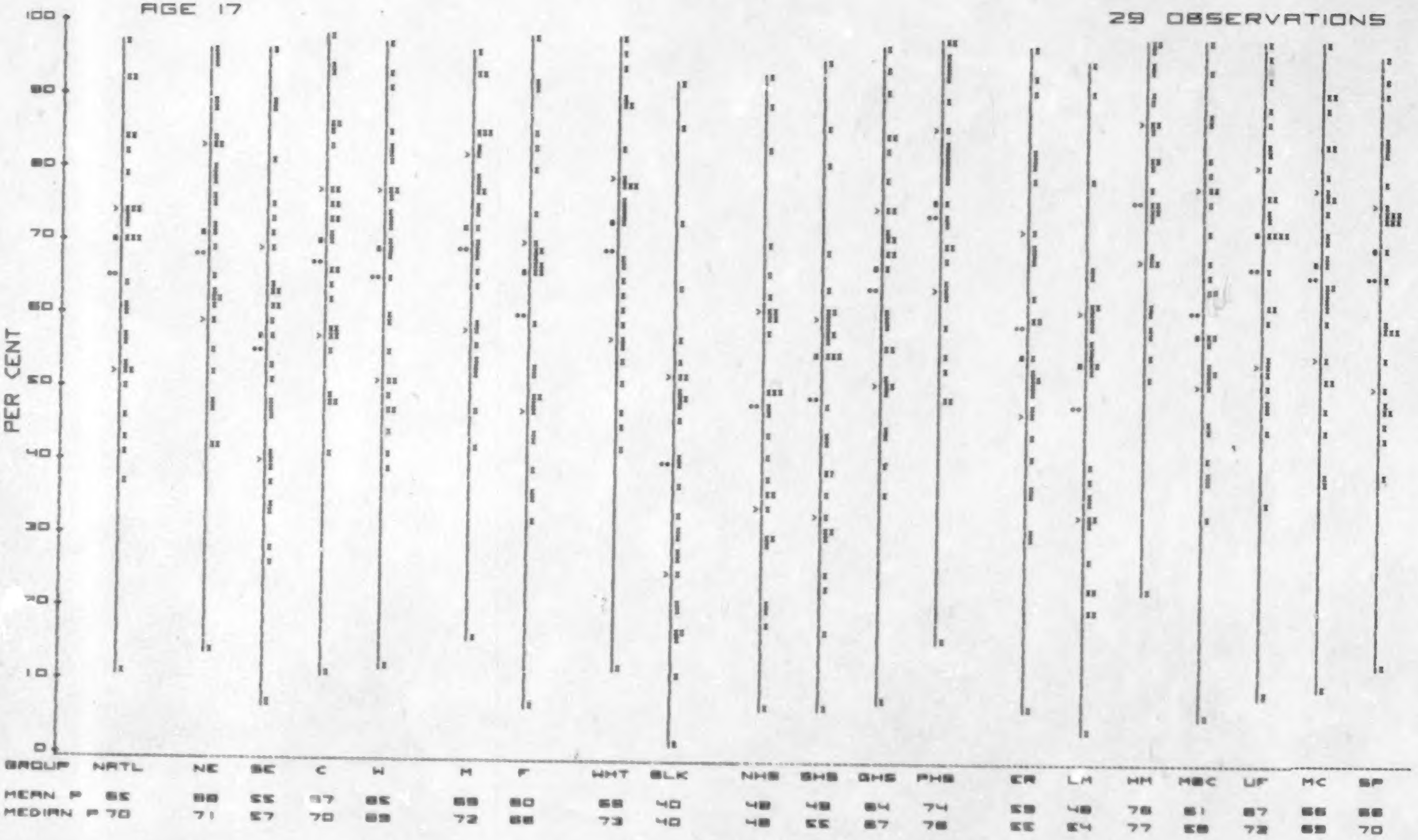
GEOMETRY

OVERLAP EXERCISES FOR AGES 13 AND 17



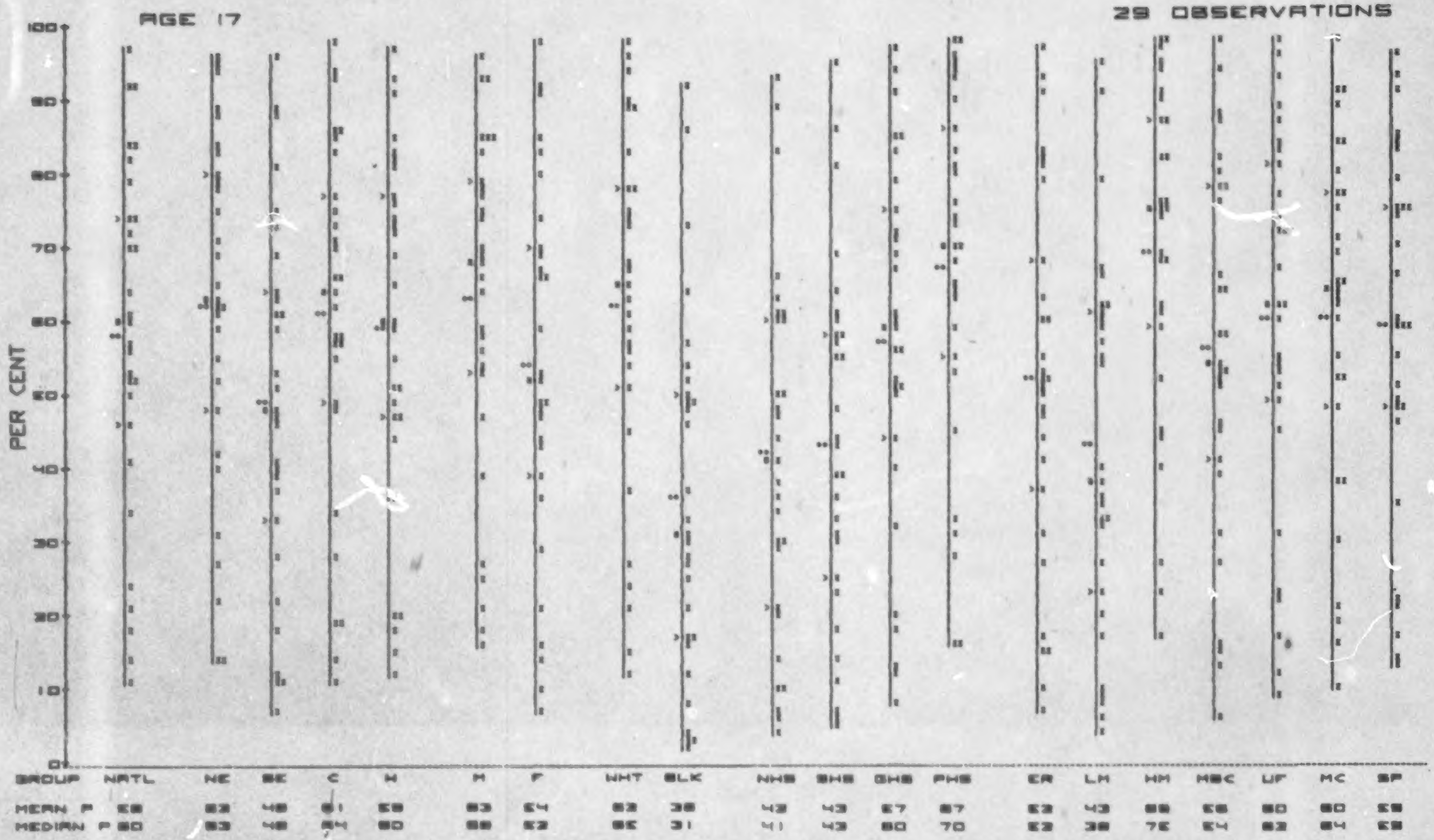
GEOMETRY

OVERLAP EXERCISES FOR AGES 13 AND 17



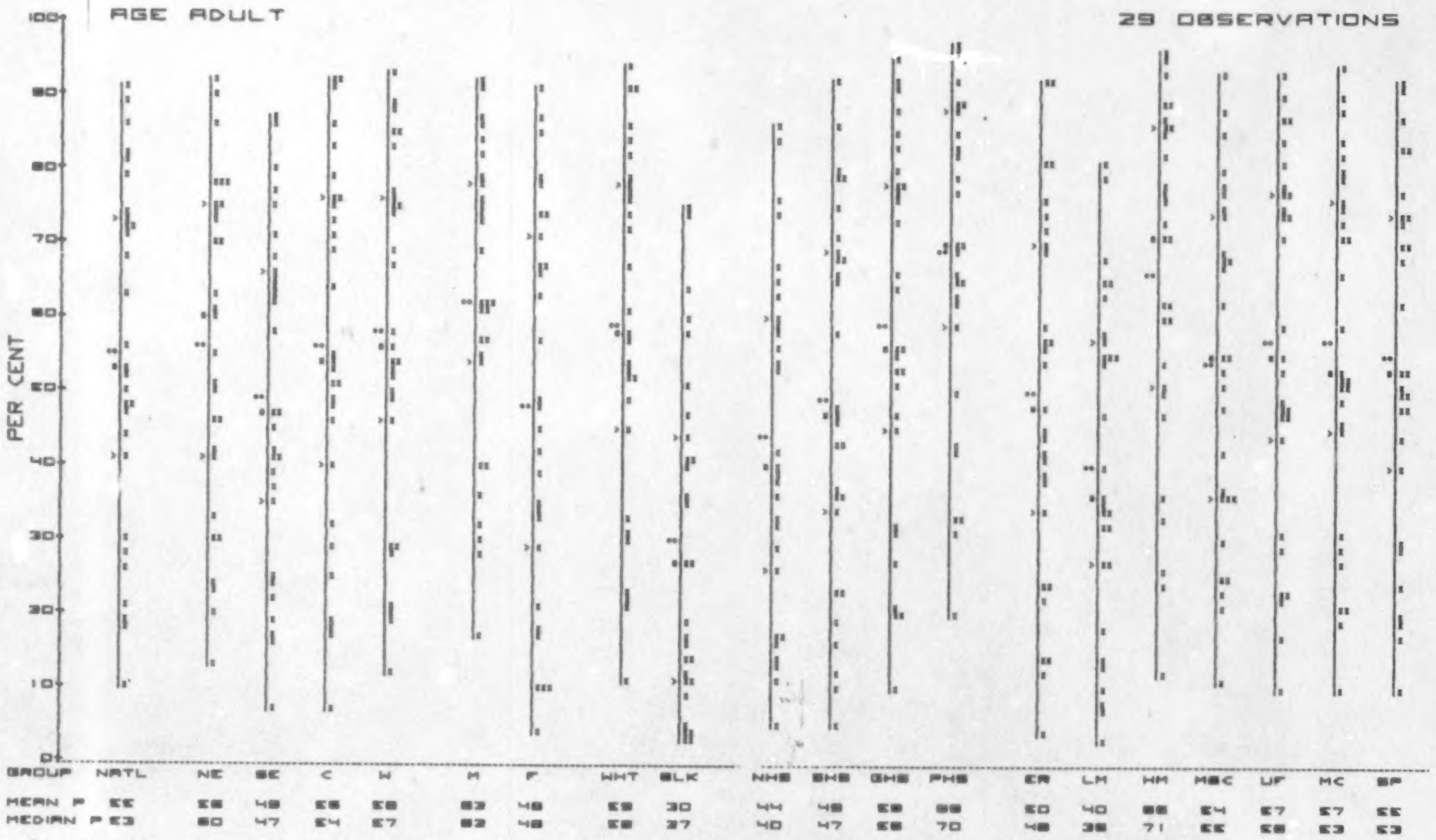
GEOMETRY

OVERLAP EXERCISES FOR AGES 17 AND ADULT



GEOMETRY

OVERLAP EXERCISES FOR AGES 17 AND ADULT



CHAPTER 7

CONSUMER MATHEMATICS

The exercises summarized in this chapter deal with the major content area of consumer mathematics. Many of the mathematical skills needed in the marketplace, such as the ability to compute, to use percents, to make measurements and to convert measurement units, were included in the summaries presented in earlier chapters. The exercises included in this summary dealt with situations that one might encounter as a consumer. All of the exercises were presented as word problems, which required the respondent to determine the appropriate mathematical process before beginning calculations. Also, exercises dealing with methods of representing data were included in these summaries as the alert consumer should be able to read and interpret such information. The majority of the consumer-mathematics exercises were aimed at the two older age levels — to make the situations as realistic as possible and to insure that respondents would have proficiency in the mathematical skills necessary to the solution of the problems.

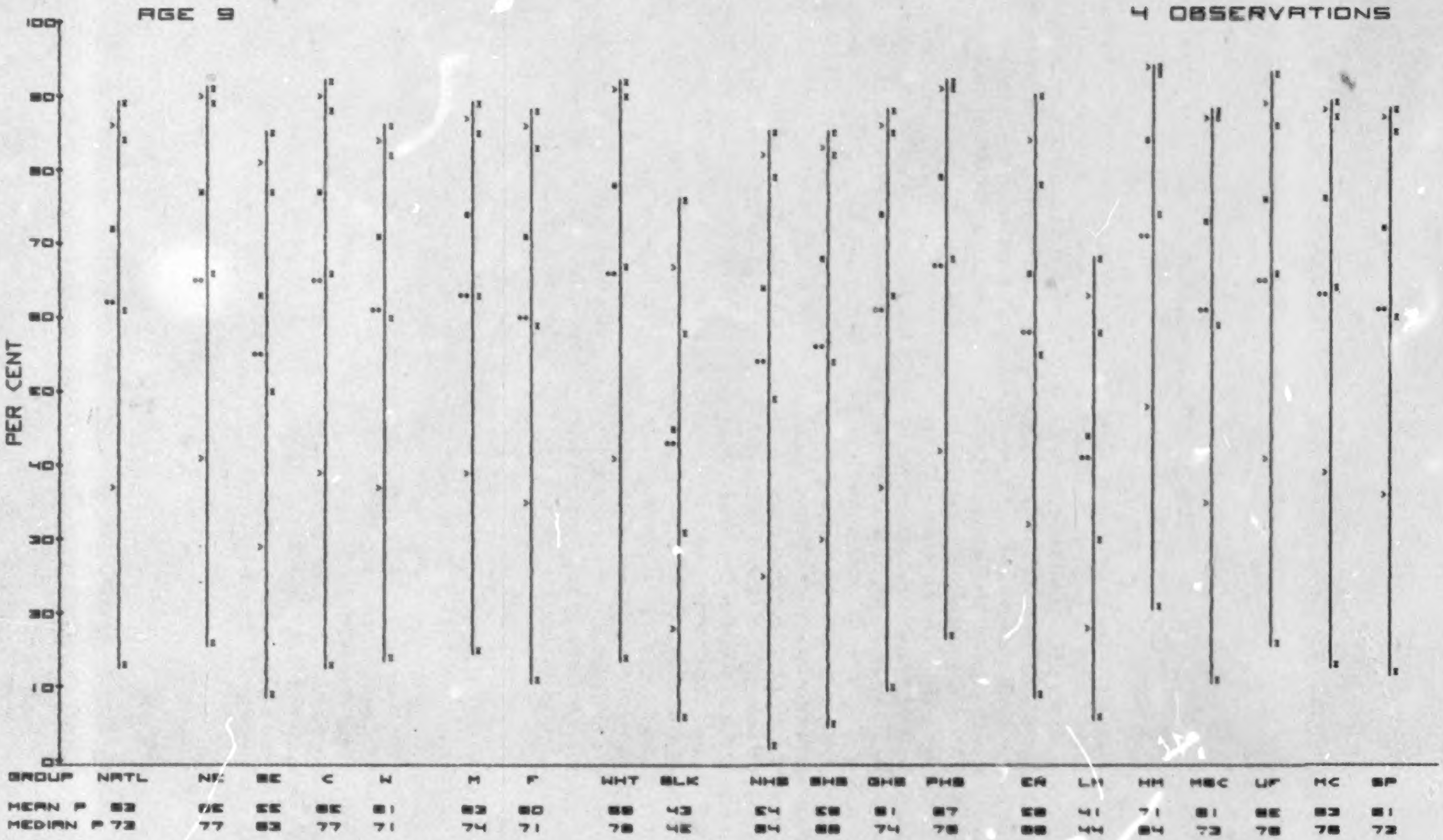
The first section of graphs (immediately following) presents the distribution of percentages (p-values) for the nation and each reporting group on these exercises for each age. Mean p-values are indicated by **; median percentages are indicated by $\tilde{X}$, and hinge p-values are indicated by >. The format of the graphs is explained in Chapter 2; the reporting-group definitions and standard abbreviations are presented in Chapter 1. Although the National Assessment of Educational Progress feels that a *minimum* of 10 exercises are needed for a reliable summary, the results for the 9-year-olds have been presented here for reader convenience. Ca[illegible] should be used in interpreting summarie[illegible]d on less than 10 exercises.

Readers who wish to know the performance of a reporting group on the specific exercises included in the summary will find a list of the exercises in Appendix A that indicates the performance of each group on each exercise or exercise part included in the summary. A "+" sign indicates that the group performed significantly above the national level of performance; a "-" sign indicates that the group performed significantly below the national level of performance on that exercise.

The absence of either sign indicates that there was no significant difference between the performance of the reporting group and that of the nation. To be considered significant, the difference between the group and the nation had to be greater (in absolute value) than twice its standard error. This is approximately equivalent to the .05 level of statistical significance. The contents of specific exercises and the exact results for each reporting group on each exercise may be located in the *Math Technical Report: Exercise Volume, Report 04-MA-20* by referring to the exercise-release numbers.

CONSUMER MATH

ALL EXERCISES

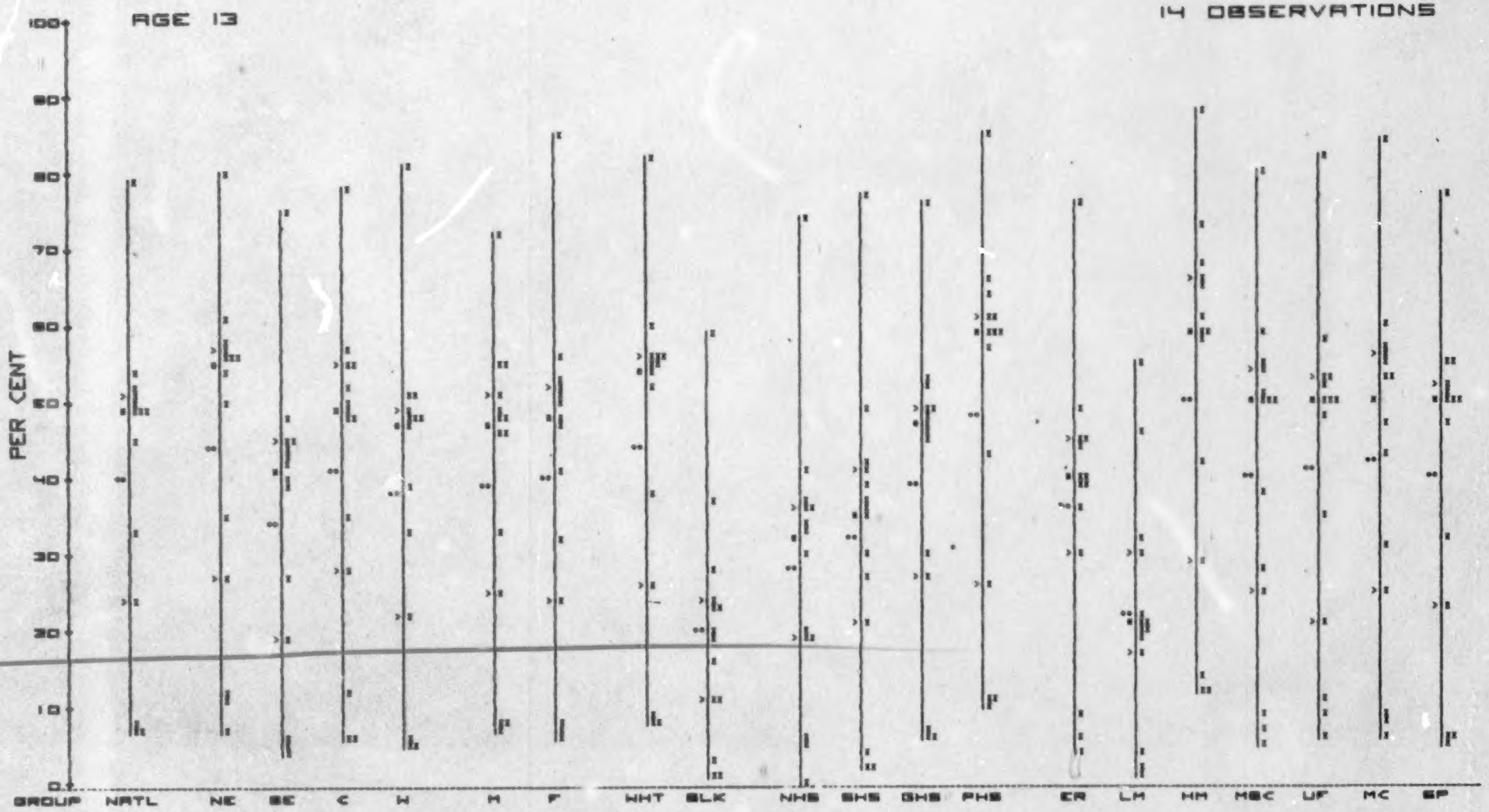


CONSUMER MATH

ALL EXERCISES

AGE 13

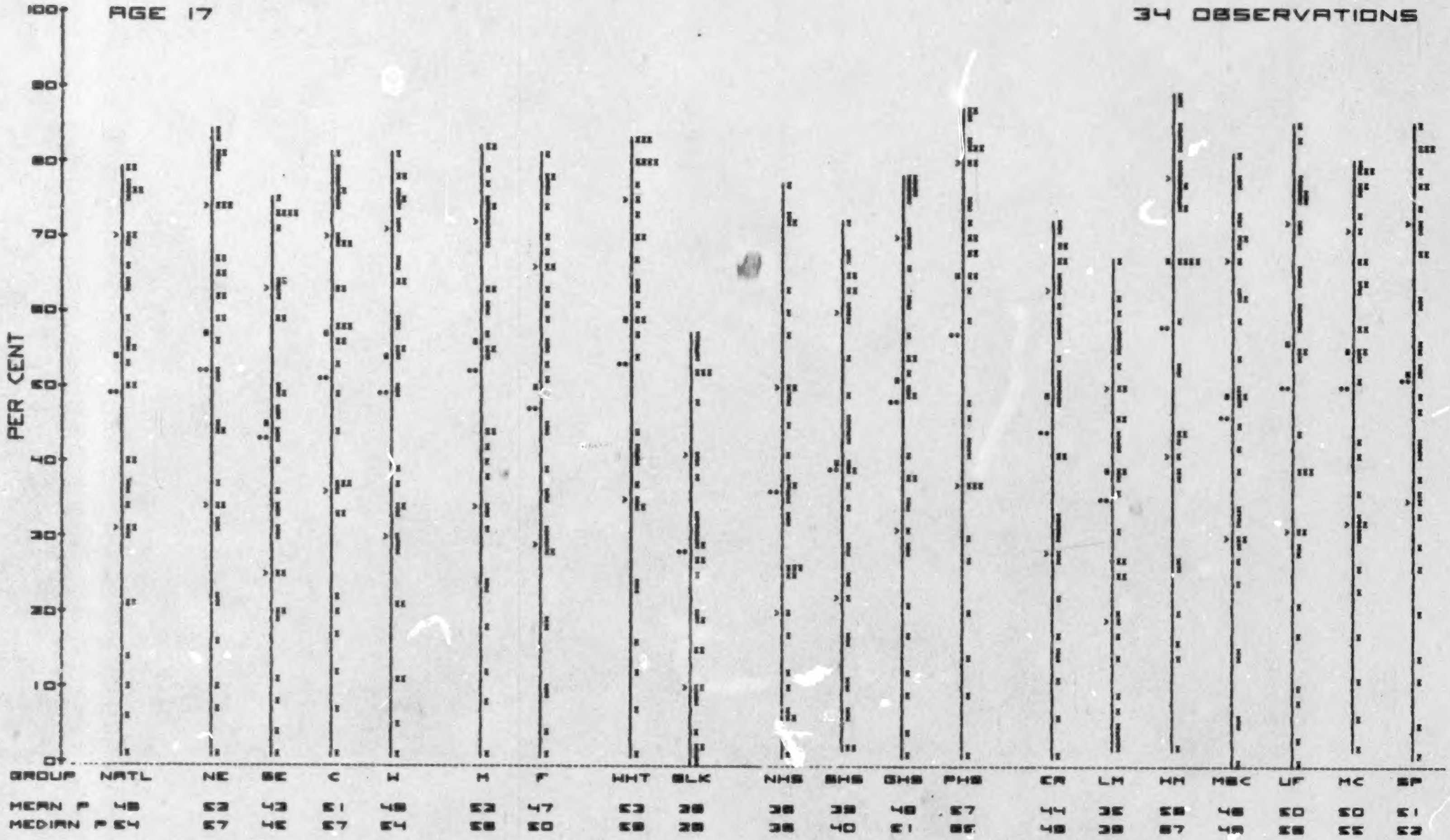
14 OBSERVATIONS



GROUP	NATL	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
MEAN P	40	44	34	41	38	38	40	44	20	28	32	38	48	36	22	50	40	41	42	40
MEDIAN P	48	55	41	48	47	47	48	54	20	32	35	47	58	40	21	58	50	50	50	50

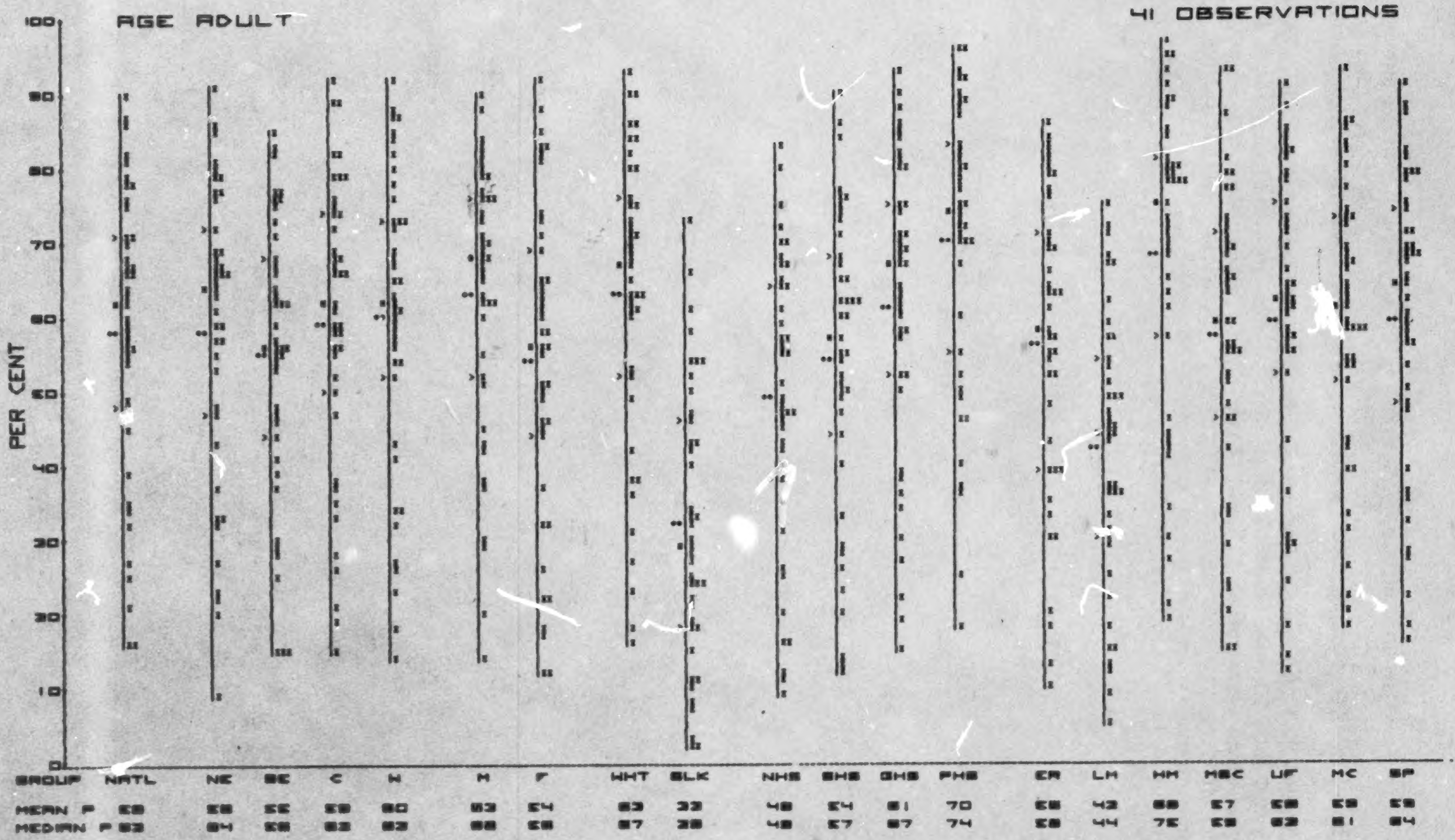
CONSUMER MATH

ALL EXERCISES



CONSUMER MATH

ALL EXERCISES



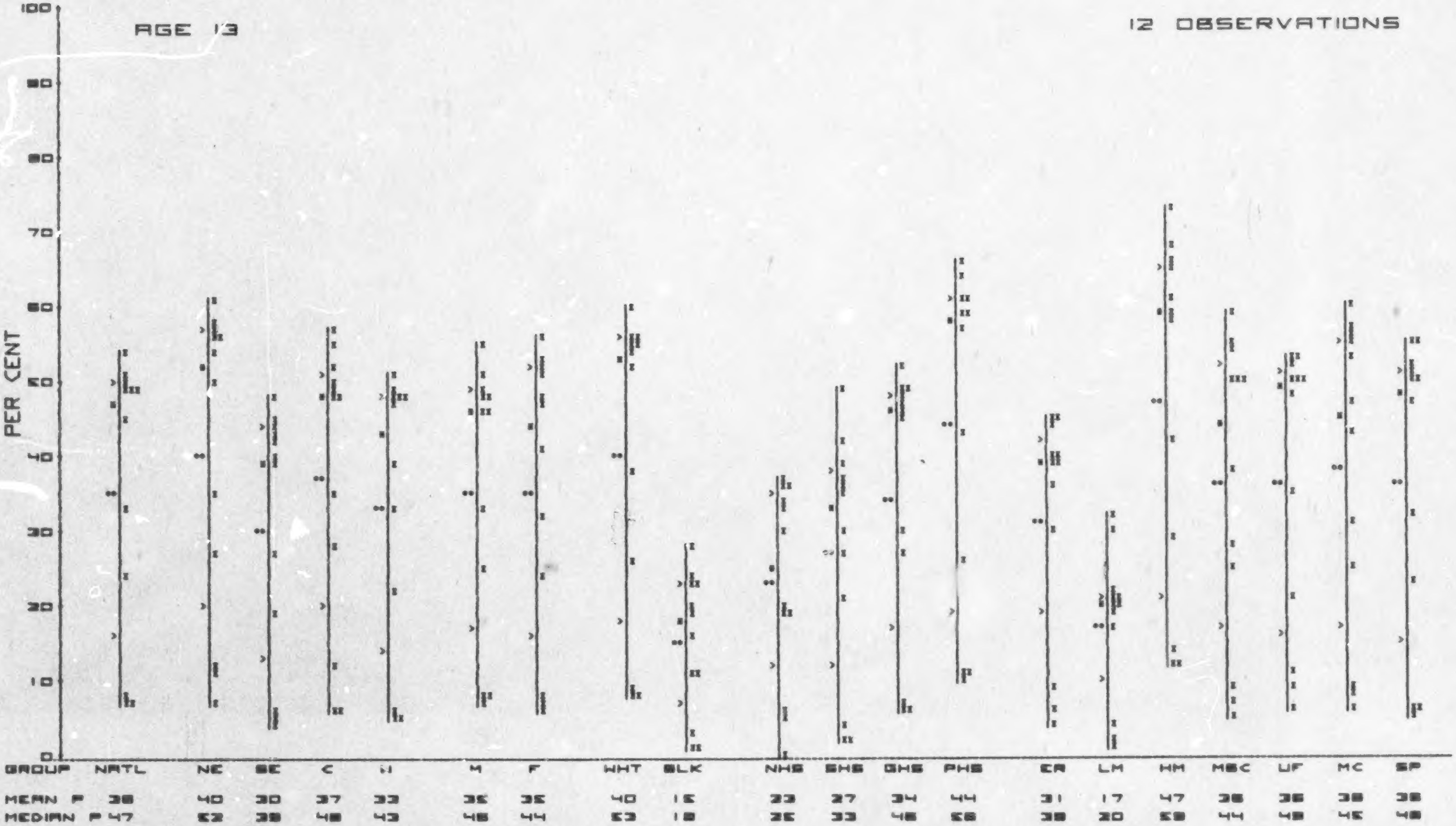
Overlap Exercises

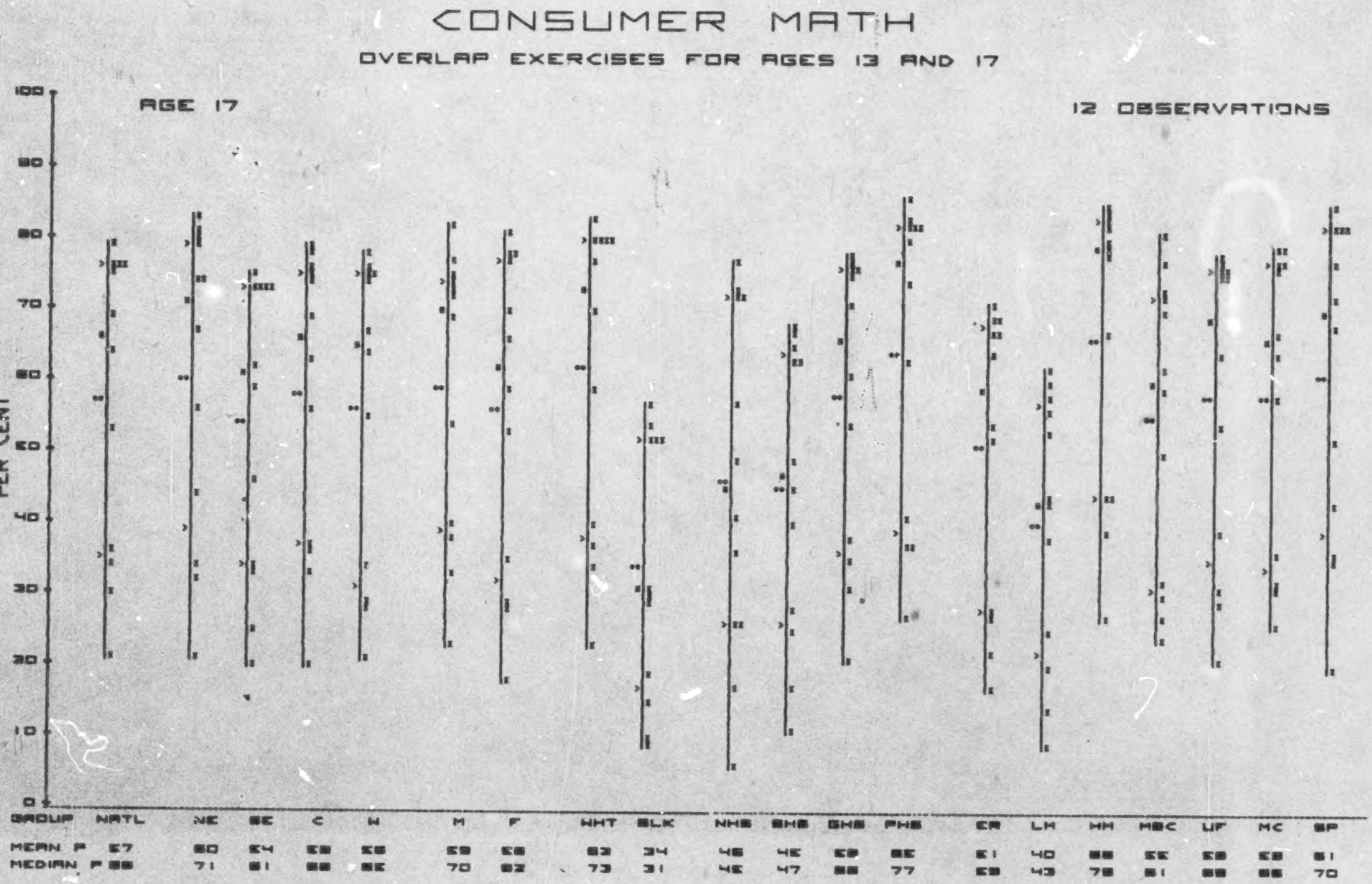
The following four graphs are to be examined in pairs. The first two graphs present the performance for the nation and the reporting groups on the 12 consumer-mathematics overlap exercises administered to 13- and 17-year-olds. The next pair of graphs presents the same information for the 34 overlap exercises administered to 17-year-olds and adults.

Appendix B provides information on the performance of the reporting groups for each of the exercises included in each of the overlap summaries. Specific information about the content of these exercises and performance of the reporting groups can be found in the *Math Technical Report: Exercise Volume* by using the exercise-release numbers.

CONSUMER MATH

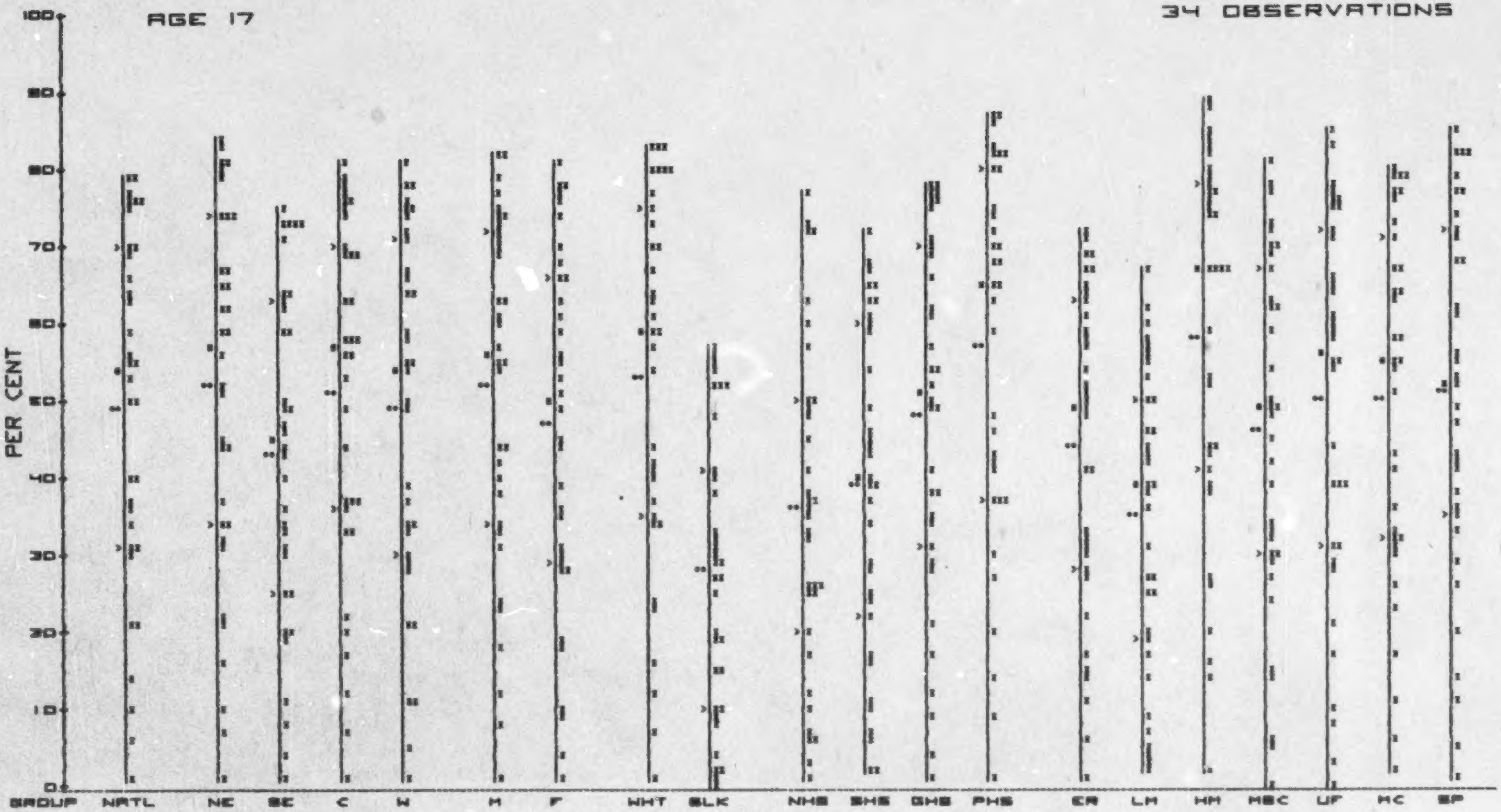
OVERLAP EXERCISES FOR AGES 13 AND 17



CONSUMER MATH
OVERLAP EXERCISES FOR AGES 13 AND 17
AGE 17
12 OBSERVATIONS
PER CENT
100
90
80
70
60
50
40
30
20
10
0
GROUP NATL NE SE C W M F WHT BLK NHS SHS GHS PHS ER LM HM MBC UF MC SP
MEAN P 57 [illegible] 54 [illegible] [illegible] [illegible] [illegible] [illegible] 34 46 45 [illegible] [illegible] [illegible] 40 [illegible] 55 [illegible] [illegible] [illegible]
MEDIAN P [illegible] 71 [illegible] [illegible] [illegible] 70 [illegible] 73 31 45 47 [illegible] 77 [illegible] 43 [illegible] [illegible] [illegible] [illegible] 70

CONSUMER MATH

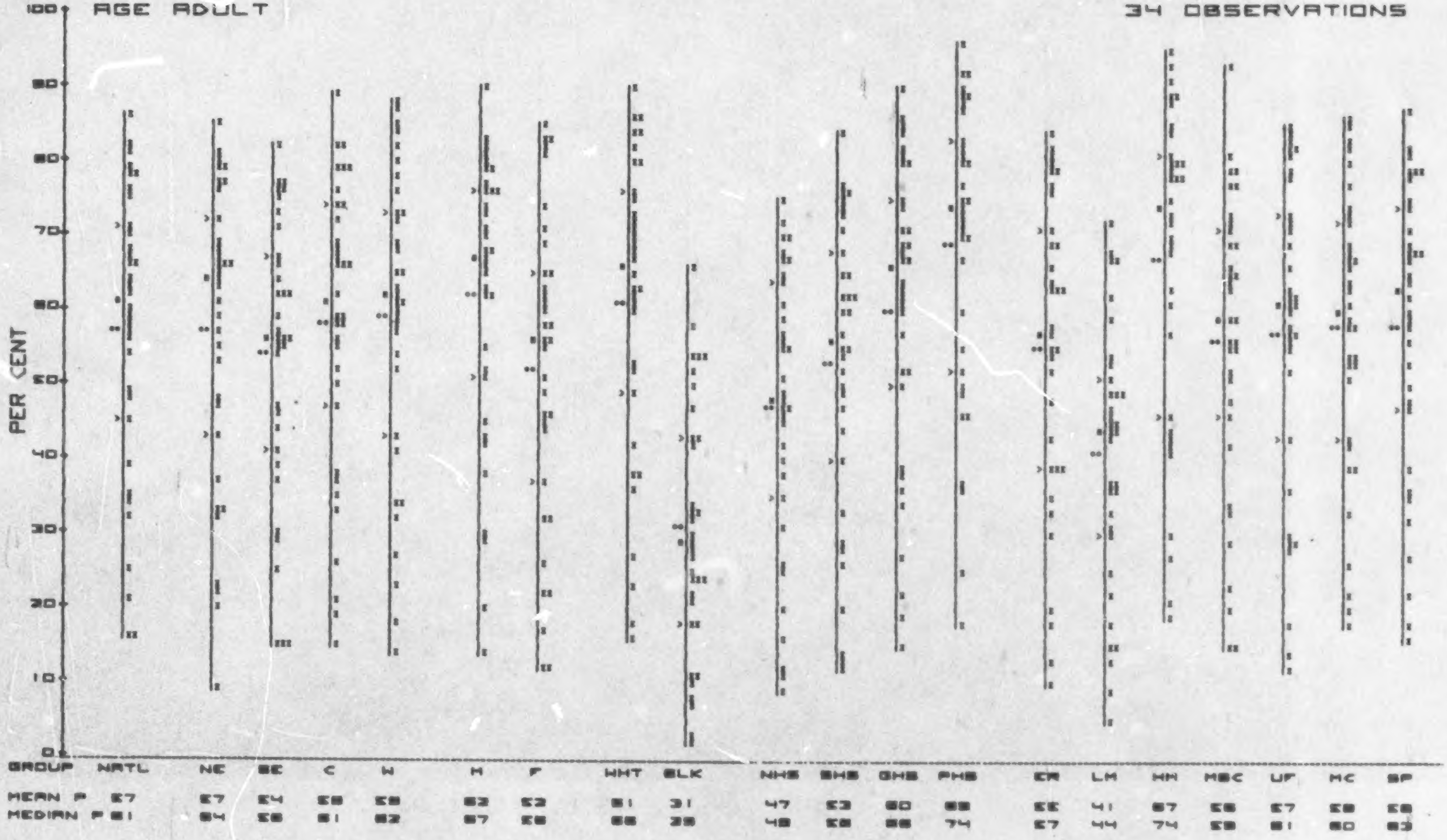
OVERLAP EXERCISES FOR AGES 17 AND ADULT



GROUP	NATL	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
MEAN P	49	52	43	51	49	52	47	53	28	38	39	49	57	44	35	58	46	50	50	51
MEDIAN P	54	57	45	57	54	58	50	59	28	36	40	51	65	49	39	67	49	58	55	53

CONSUMER MATH

OVERLAP EXERCISES FOR AGES 17 AND ADULT



CHAPTER 8

SUMMARIES ACROSS MAJOR CONTENT AREAS

This chapter is devoted to cross-age analyses of the overlap exercises within each of the six major content areas. These graphs summarize the overlap information presented in Chapters 2—7. There are exhibits for the national-age results and for each of the reporting groups, comparing 9- and 13-year-olds, 13- and 17-year-olds, and 17-year-olds and adults. Although there are a limited number of overlap exercises or exercise parts in the major content areas of variables and relationships, probability and statistics, and consumer mathematics for the 9- and 13-year-olds, the overlap summaries in these areas (with the exception of consumer mathematics) are included in the exhibits for the convenience of the reader. Caution should be taken in interpreting overlap summaries based on less than 10 exercises or exercise parts.

The range of percentages for each of the age levels on the overlap exercises is represented by the dotted vertical lines, with the "+" signs at the ends representing the highest and lowest percentages. The mean percentages are connected by a solid line on the graph, and the upper and lower hinges (which are the boundaries of a group's middle half of the exercises) are connected by dashes. The median percentage is noted by an "X" on the graph. Mean and median percentages for the nation and the reporting groups are presented below the graph. The number of exercises or exercise parts (No. OBS.) summarized is also provided. The graphs can be used to determine the relative strengths and weaknesses of the age levels on the major content areas for each of the National Assessment of Educational Progress' reporting groups. For example, the performance of respondents from the Northeast is presented on pages 80—81. From the exhibit, one can see that the adults outperformed 17-year-olds in the areas of numbers and numeration, variables and relationships, geometry and probability and statistics. In the area of probability and statistics, the 17-year-olds performed slightly higher than the adults — while the opposite was true for the nation.

Although National Assessment was not originally designed to interpret the assessment findings, it has worked closely with a panel of mathematics educators from the National Council of Teachers of Mathematics (NCTM) who addressed themselves to the implications of the assessment results. The NCTM panel (Dr. Thomas Carpenter, University of Wisconsin [Madison]; Dr. Terrence Coburn, Oakland Public Schools, Pontiac, Michigan; Dr. Robert Reys, University of Missouri [Columbia]; and Dr. James Wilson, University of Georgia [Athens]) presented its findings in the October 1975 issues of *The Arithmetic Teacher*[1] and *The Mathematics Teacher*.[2] For the reader who is interested in the implications of the assessment results for mathematics education, these articles serve as reference.

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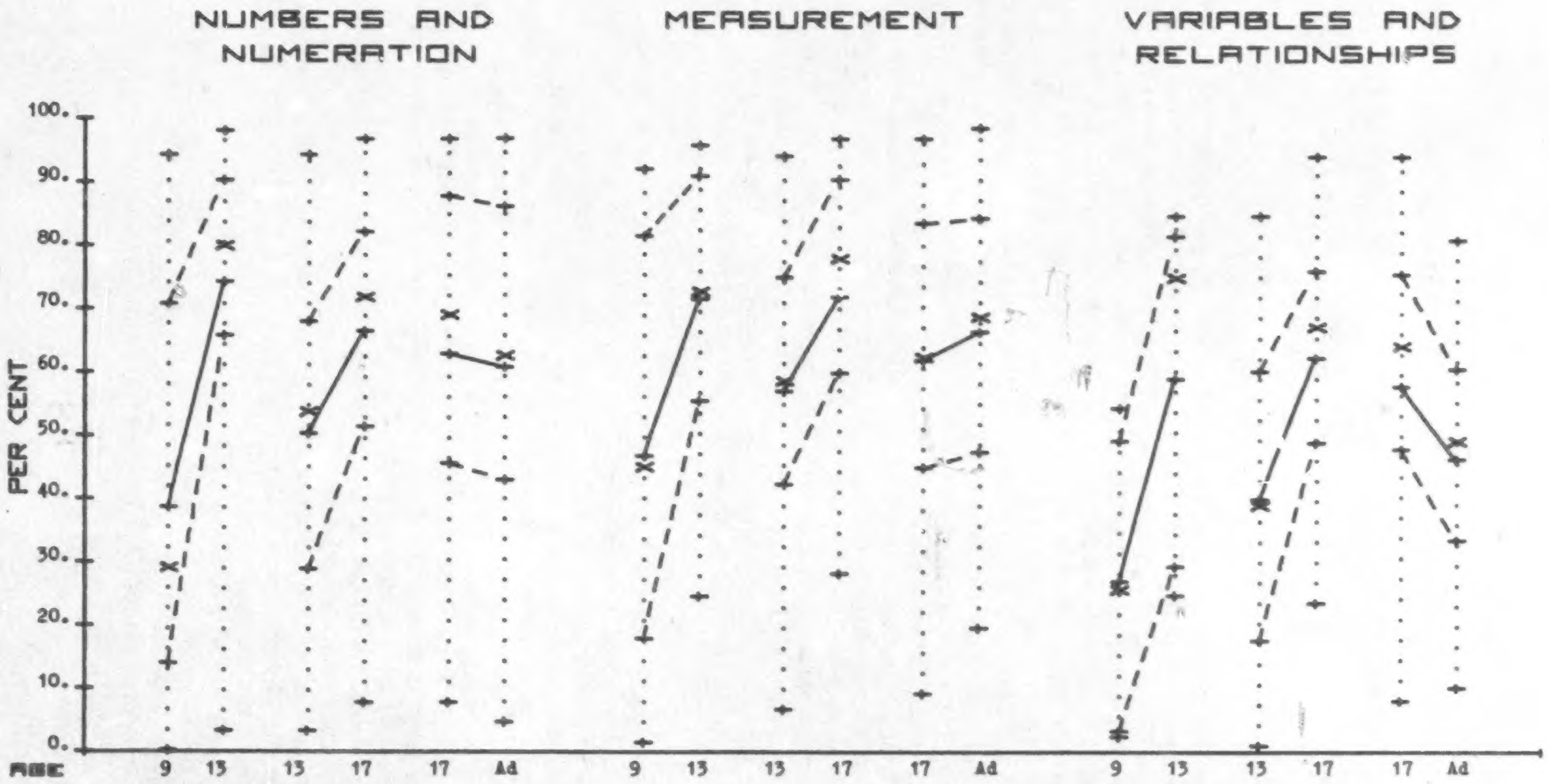
[1] Thomas P. Carpenter et al., "Results and Implications of the NAEP Mathematics Assessment: Elementary School," *The Arithmetic Teacher*, 22, No. 6 (October 1975), pp. 438—50.

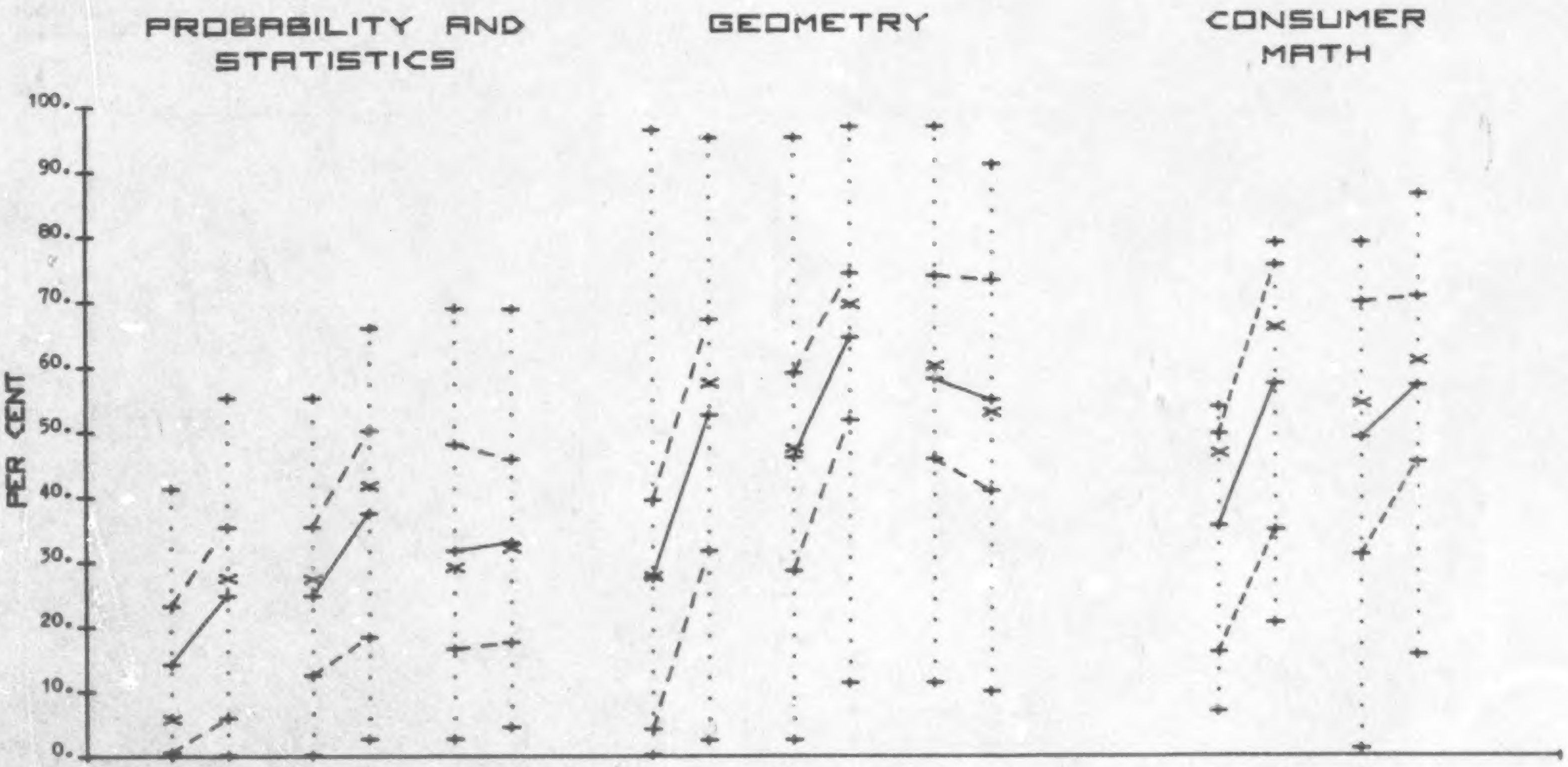
[2] Thomas P. Carpenter et al., "Results and Implications of the NAEP Mathematics Assessment: Secondary School," *The Mathematics Teacher*, 68, No. 6 (October 1975), pp. 453—70.

NATIONAL



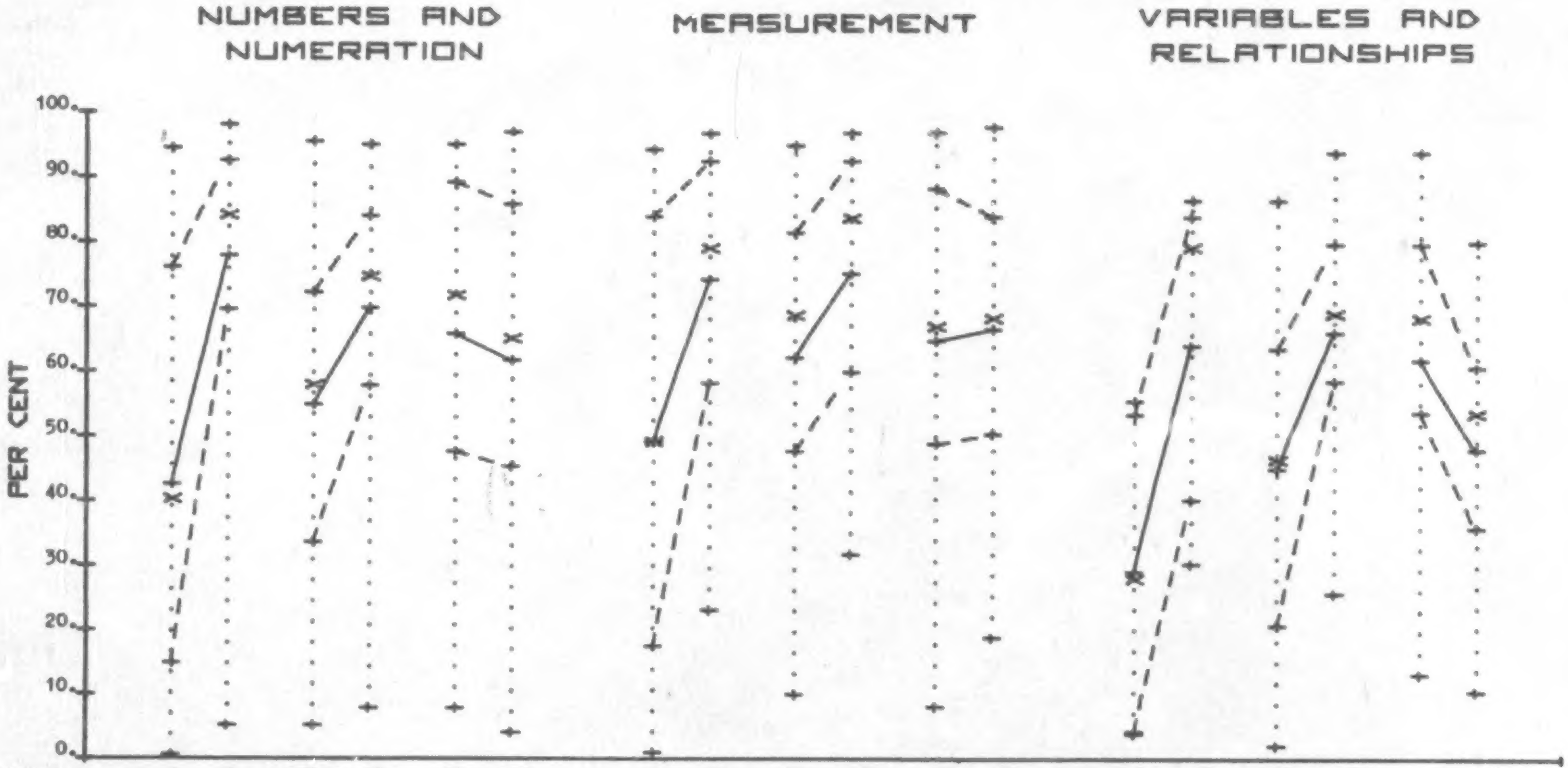
AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	9	13	13	17	17	Ad
NATIONAL MEAN P	39	74	50	67	63	61	47	72	57	72	62	66	27	59	40	62	58	46
MEDIAN P	29	80	54	72	69	63	45	73	59	78	62	69	26	75	39	67	64	49
NO. OBS.	43		68		43		22		19		32		5		24		21	

NATIONAL



AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	13	17	17	Ad
NATIONAL MEAN P	14	25	25	38	32	33	28	53	46	65	58	55	36	57	49	57
MEDIAN P	6	28	27	42	29	32	28	58	47	70	60	53	47	66	54	61
NO. OBS.	5		10		12		27		29		29		12		34	

NORTHEAST



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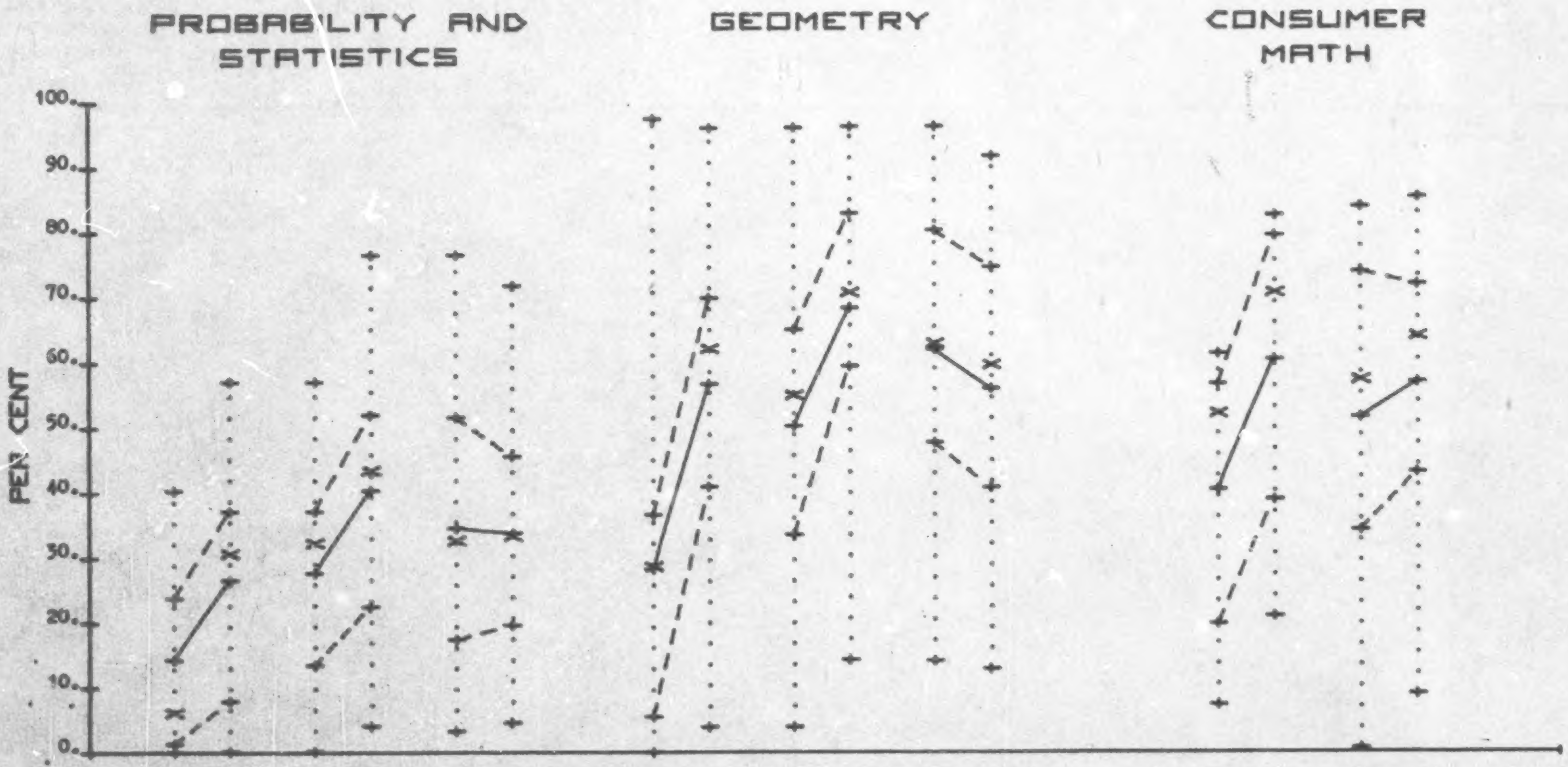
NATIONAL																		
MEAN P	39	74	50	67	63	61	47	72	57	72	62	66	27	59	40	62	58	46
MEDIAN P	29	80	54	72	69	63	45	73	59	78	62	69	26	75	39	67	64	49
GROUP																		
MEAN P	43	78	55	70	66	62	49	74	62	75	65	67	29	64	45	66	62	48
MEDIAN P	40	84	58	75	72	65	49	79	69	84	67	68	28	79	46	69	68	53
NO. OBS.	43		68		43		22		19		32		5		24		21	

NORTHEAST



	PROBABILITY AND STATISTICS						GEOMETRY						CONSUMER MATH			
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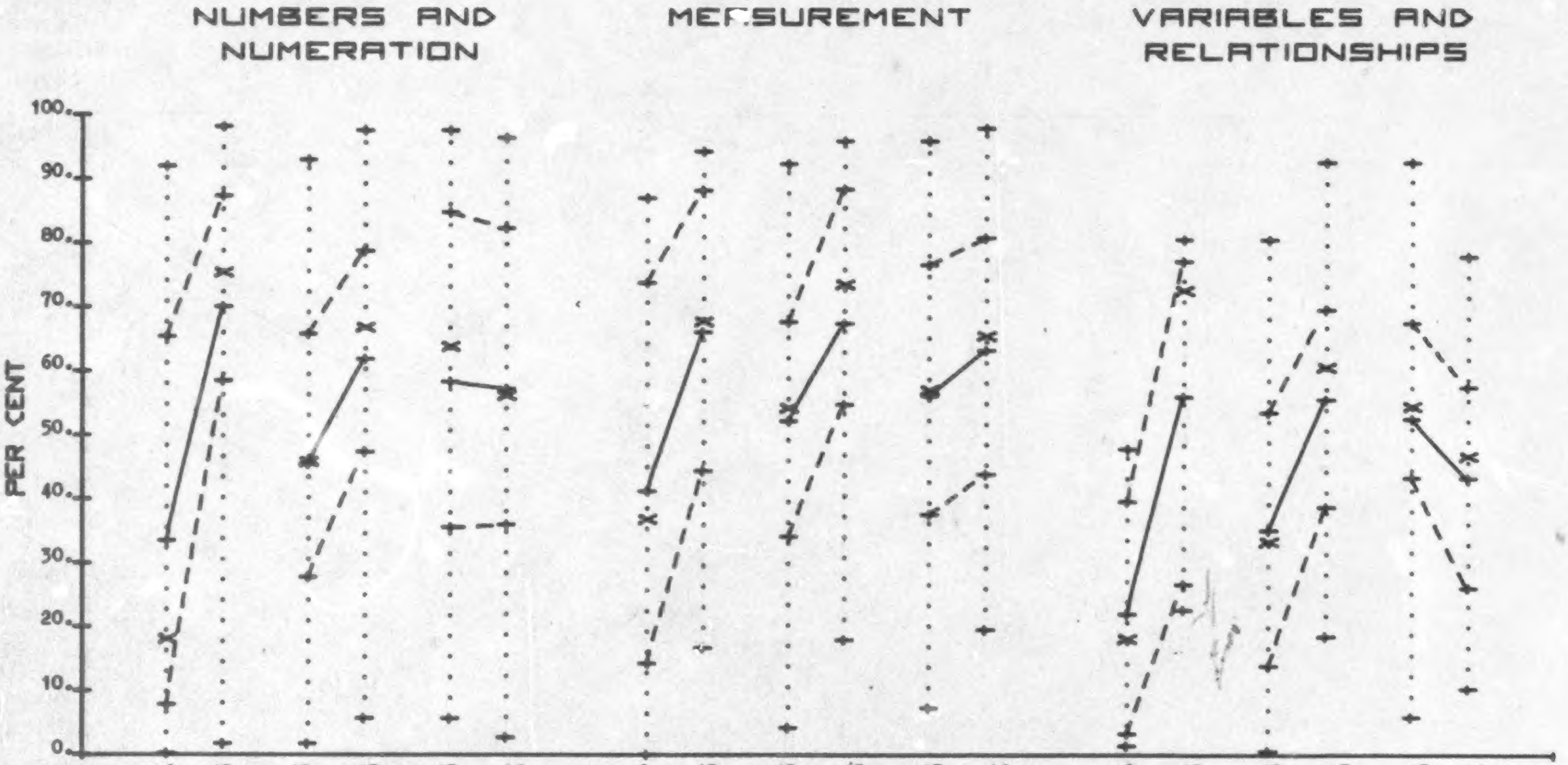
NATIONAL																
MEAN P	14	25	25	38	32	33	28	53	46	65	58	55	36	57	49	57
MEDIAN P	6	28	27	42	29	32	28	58	47	70	60	53	47	66	54	61
GROUP																
MEAN P	14	27	28	40	35	34	28	57	50	68	62	56	40	60	52	57
MEDIAN P	6	31	32	43	33	33	29	62	55	71	63	60	52	71	57	64
NO. OBS.	5		10		12		27		29		29		12		34	

SOUTHEAST



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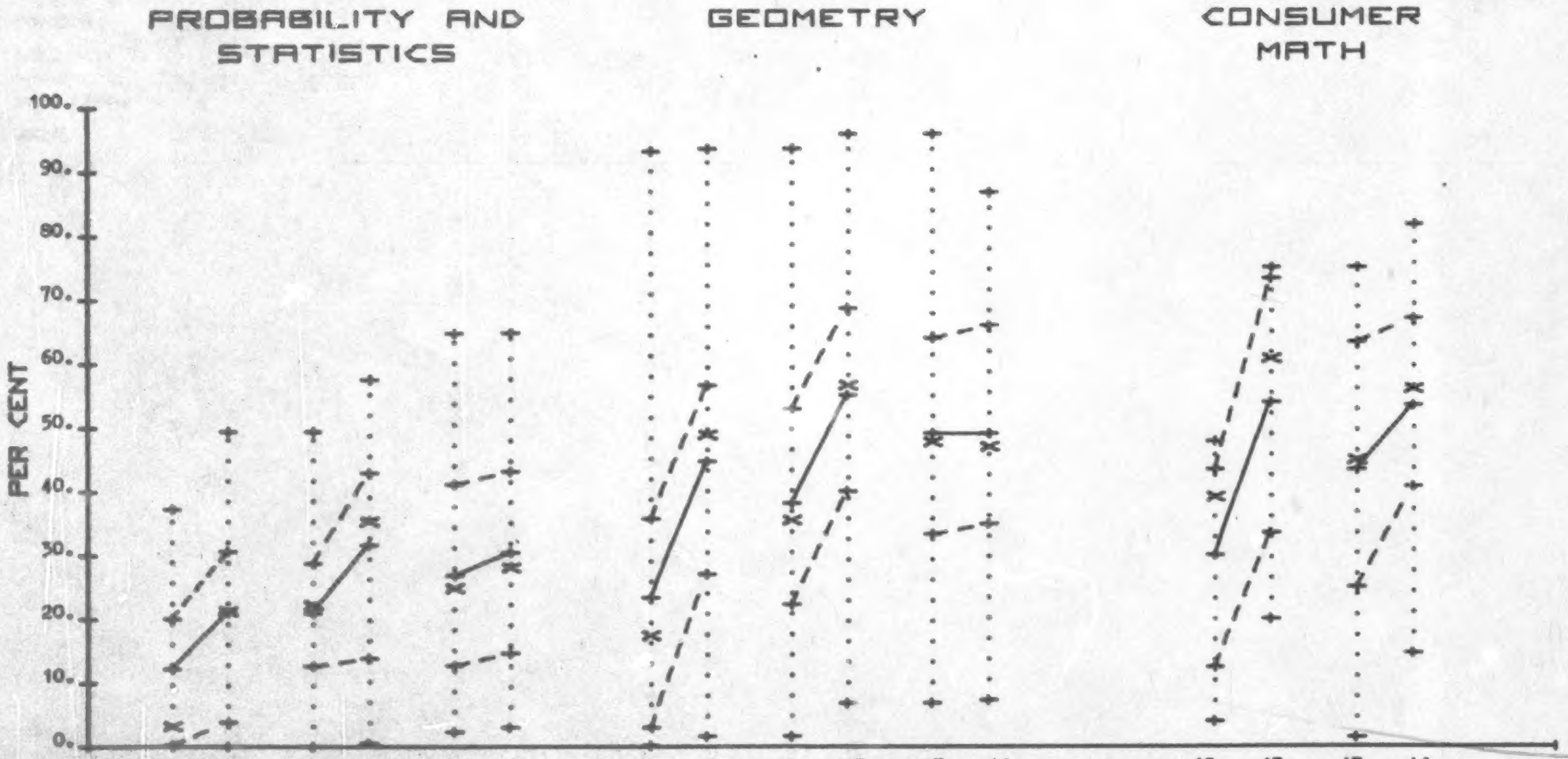
NATIONAL																		
MEAN P	39	74	50	67	63	61	47	72	57	72	62	66	27	59	40	62	58	46
MEDIAN P	29	80	54	72	69	63	45	73	59	78	62	69	26	75	39	67	64	49
GROUP																		
MEAN P	34	70	46	62	58	57	41	66	52	68	56	63	22	56	35	56	53	43
MEDIAN P	18	75	46	67	64	56	37	68	54	74	57	66	18	73	33	61	54	47
NO. OBS.	43		68		43		22		19		32		5		24		21	

SOUTHEAST



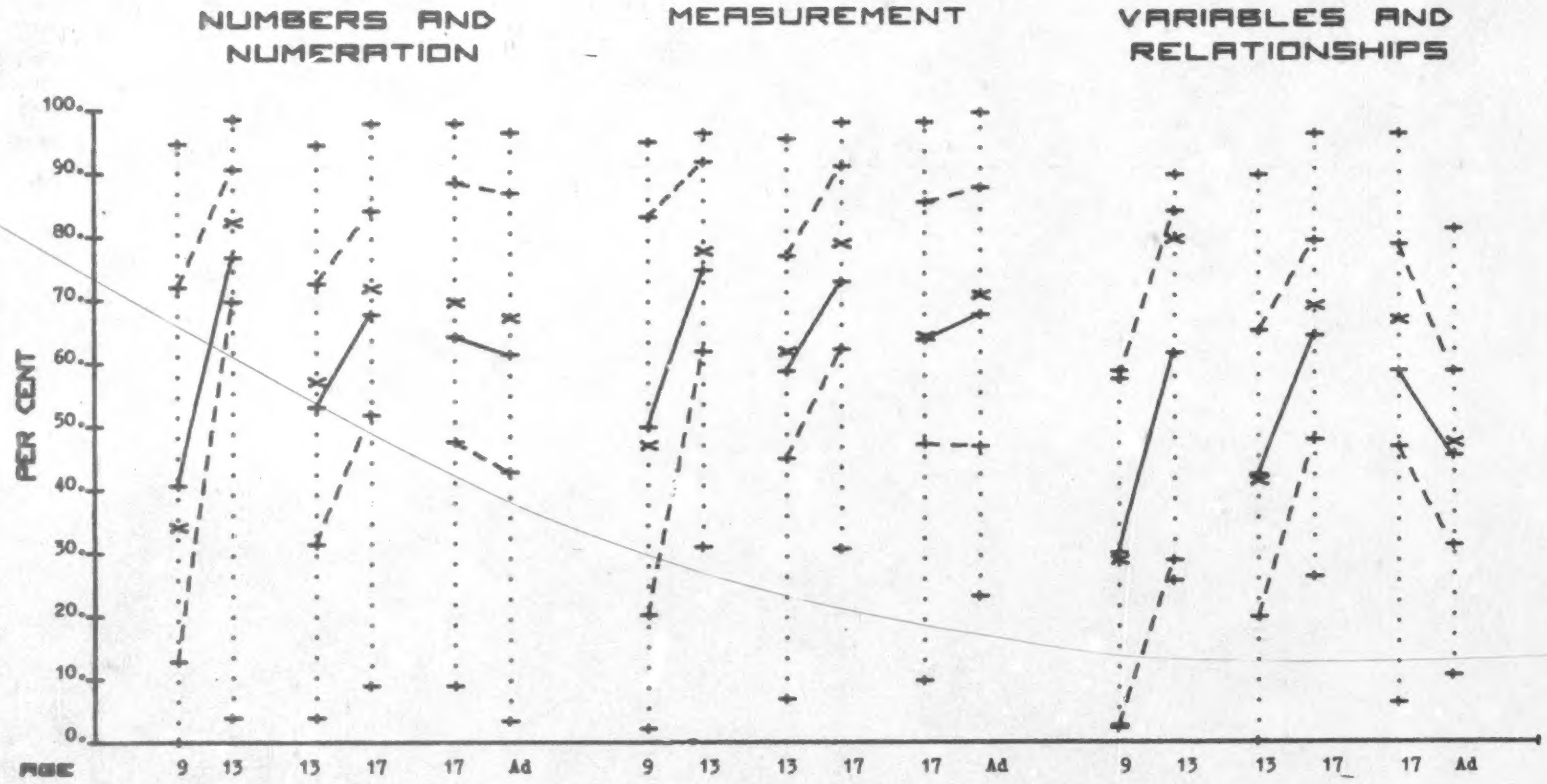
PROBABILITY AND STATISTICS

GEOMETRY

CONSUMER MATH

AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	13	17	17	Ad
NATIONAL																
MEAN P	14	25	25	38	32	33	28	53	46	65	58	55	36	57	49	57
MEDIAN P	6	28	27	42	29	32	28	58	47	70	60	53	47	66	54	61
GROUP																
MEAN P	12	21	21	32	27	31	23	45	38	55	49	49	30	54	43	54
MEDIAN P	3	21	22	35	25	28	17	49	36	57	48	47	39	61	45	56
NO. OBS.	5		10		12		27		29		29		12		34	

CENTRAL



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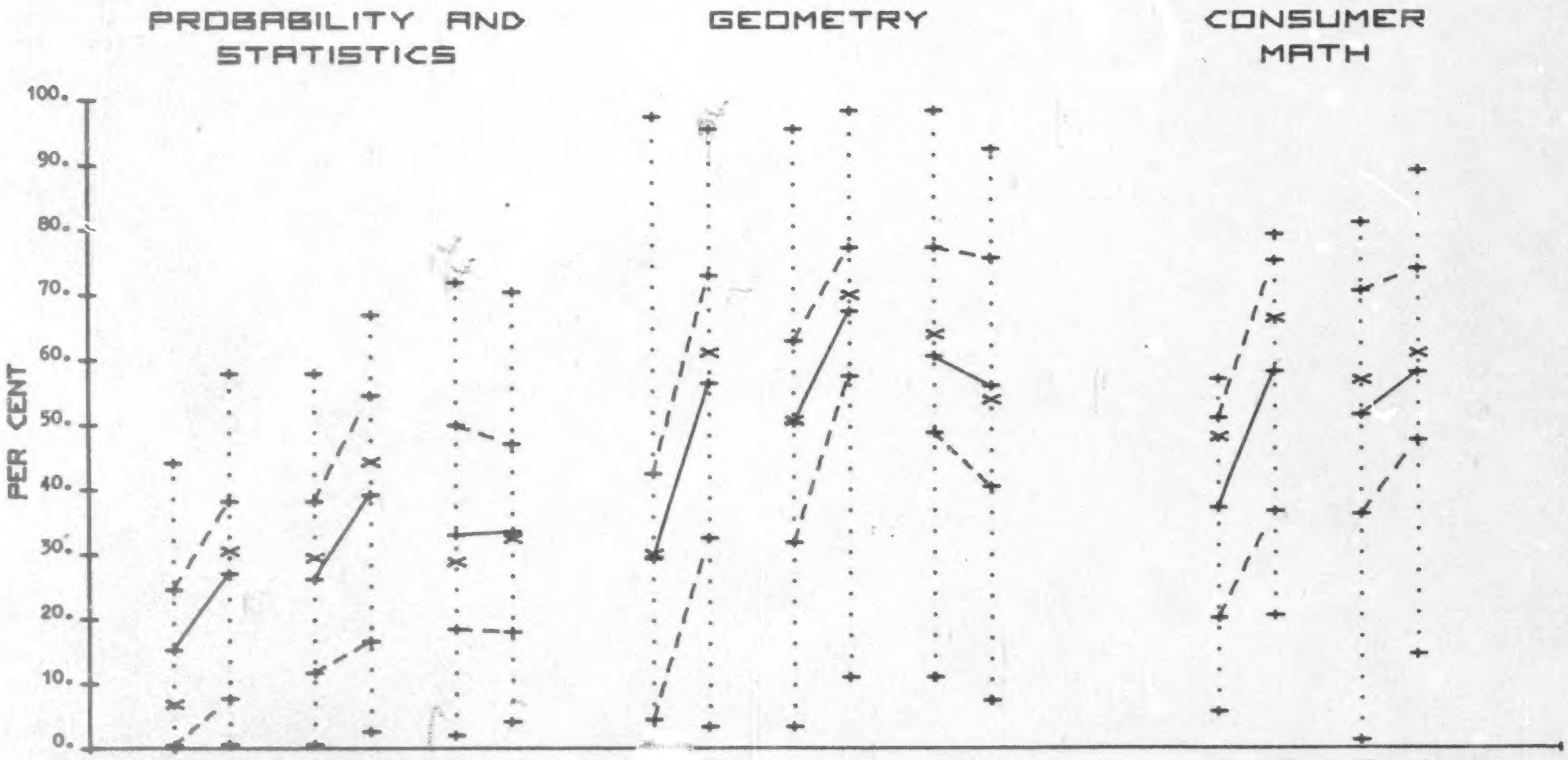
NATIONAL																		
MEAN P	39	74	50	67	63	61	47	72	57	72	62	66	27	59	40	62	58	46
MEDIAN P	29	80	54	72	69	63	45	73	59	78	62	69	26	75	39	67	64	49
GROUP																		
MEAN P	41	77	53	68	64	61	50	75	59	73	64	68	30	62	42	64	59	45
MEDIAN P	34	82	57	72	70	67	47	78	62	79	64	71	29	79	41	69	67	47
NO. OBS.	43		68		43		22		19		32				24		21	

CENTRAL'



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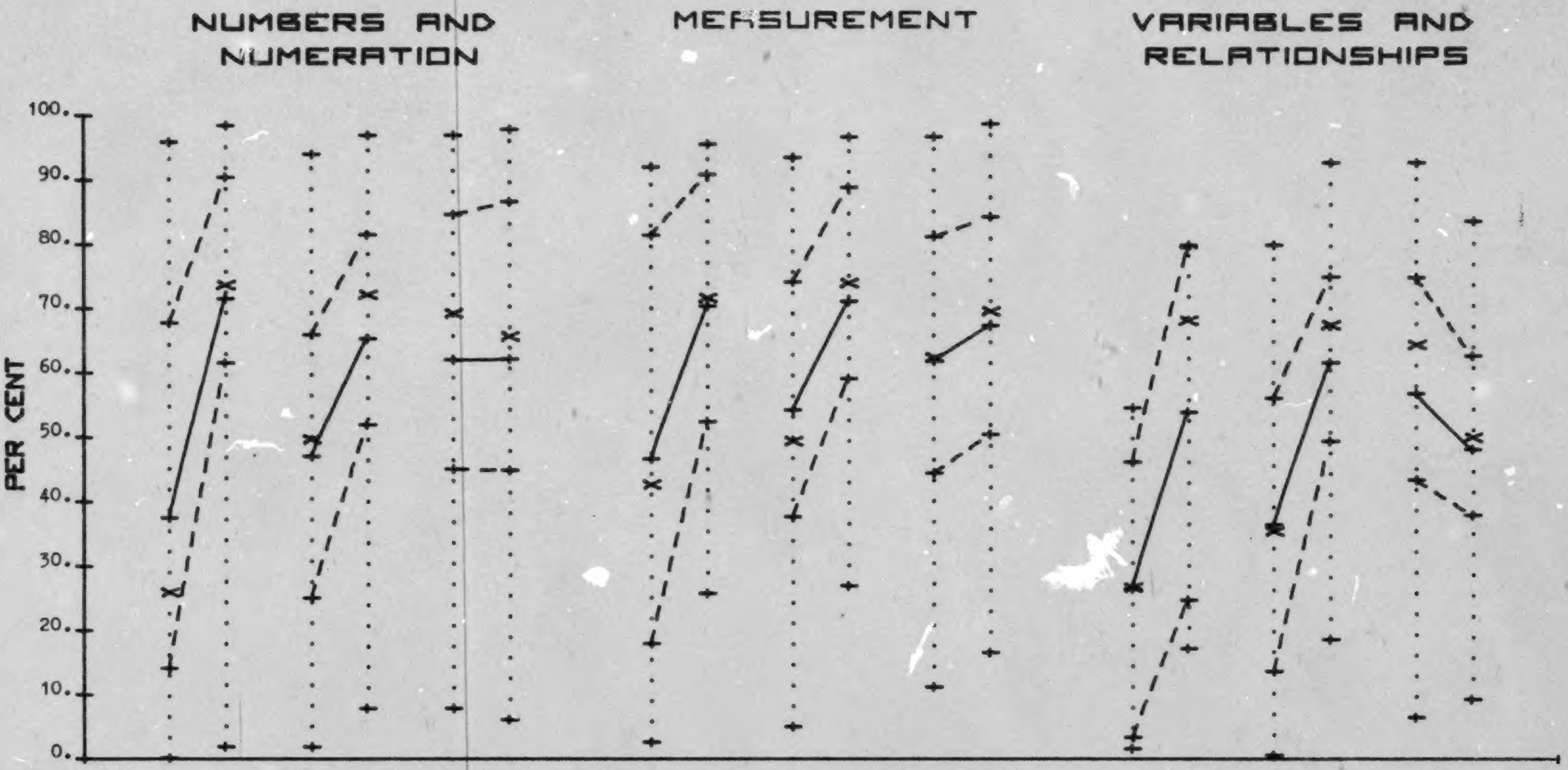
NATIONAL																
MEAN P	14	25	25	38	32	33	28	53	46	65	58	55	36	57	49	57
MEDIAN P	6	28	27	42	29	32	28	58	47	70	60	53	47	66	54	61
GROUP																
MEAN P	15	27	26	39	33	34	29	56	50	67	61	56	37	58	51	58
MEDIAN P	7	31	30	44	29	32	30	61	51	70	64	54	48	[illegible]	57	61
NO. OBS.	5		10		12		27		29		29				34	

WEST



	NUMBERS AND NUMERATION						MEASUREMENT						VARIABLES AND RELATIONSHIPS					
AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	9	13	13	17	17	Ad
NATIONAL																		
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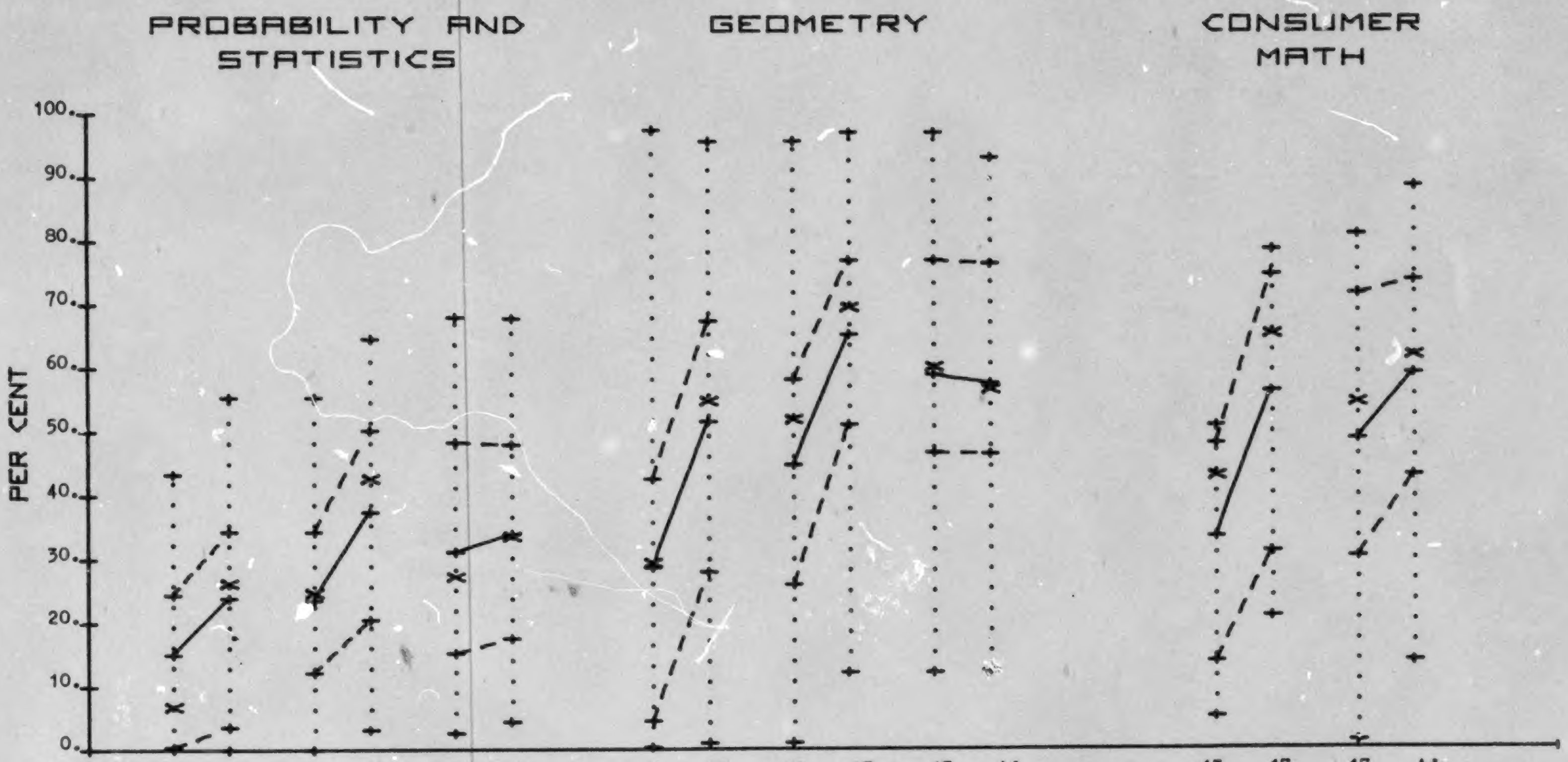
MEDIAN P	29	80	54	72	69	63	45	73	59	78	62	69	26	75	39	67	64	49
GROUP																		
MEAN P	38	72	47	65	62	62	47	71	54	71	62	67	27	54	37	62	57	48
MEDIAN P	26	74	50	72	69	66	43	72	49	74	62	70	27	68	35	67	64	50
NO. OBS.	43		68		43		22		19		32		5		24		21	

WEST



	PROBABILITY AND STATISTICS						GEOMETRY						CONSUMER MATH			
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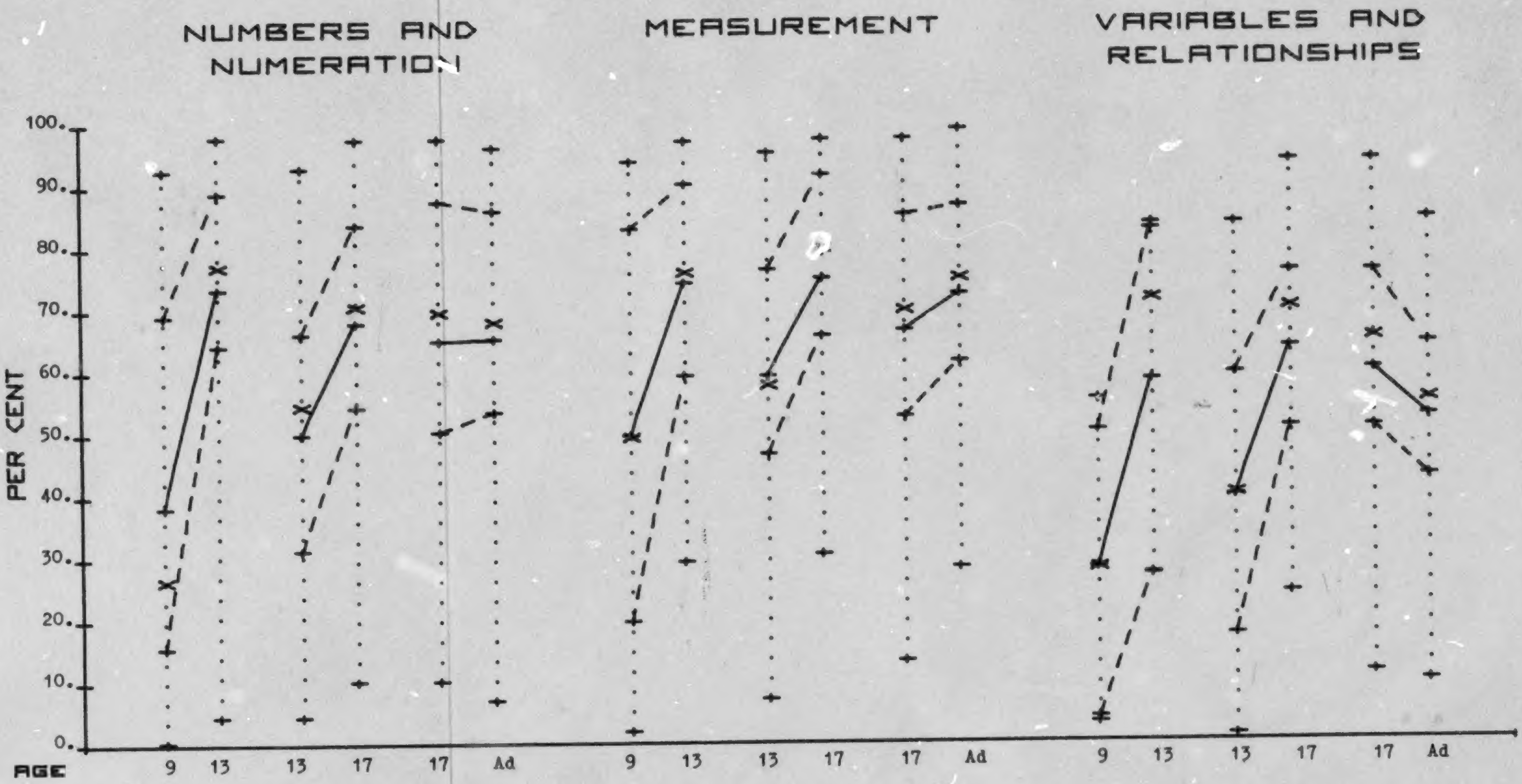
NATIONAL																
MEAN P	14	25	25	38	32	33	28	53	46	65	58	55	36	57	49	57
MEDIAN P	6	28	27	42	29	32	28	58	47	70	60	53	47	66	54	61
GROUP																
MEAN P	15	24	24	37	31	34	29	52	45	65	59	58	33	56	49	59
MEDIAN P	7	26	25	43	27	34	29	55	52	69	60	57	43	65	54	62
NO. OBS.	5		10		12		27		29		29		12		34	

MALE



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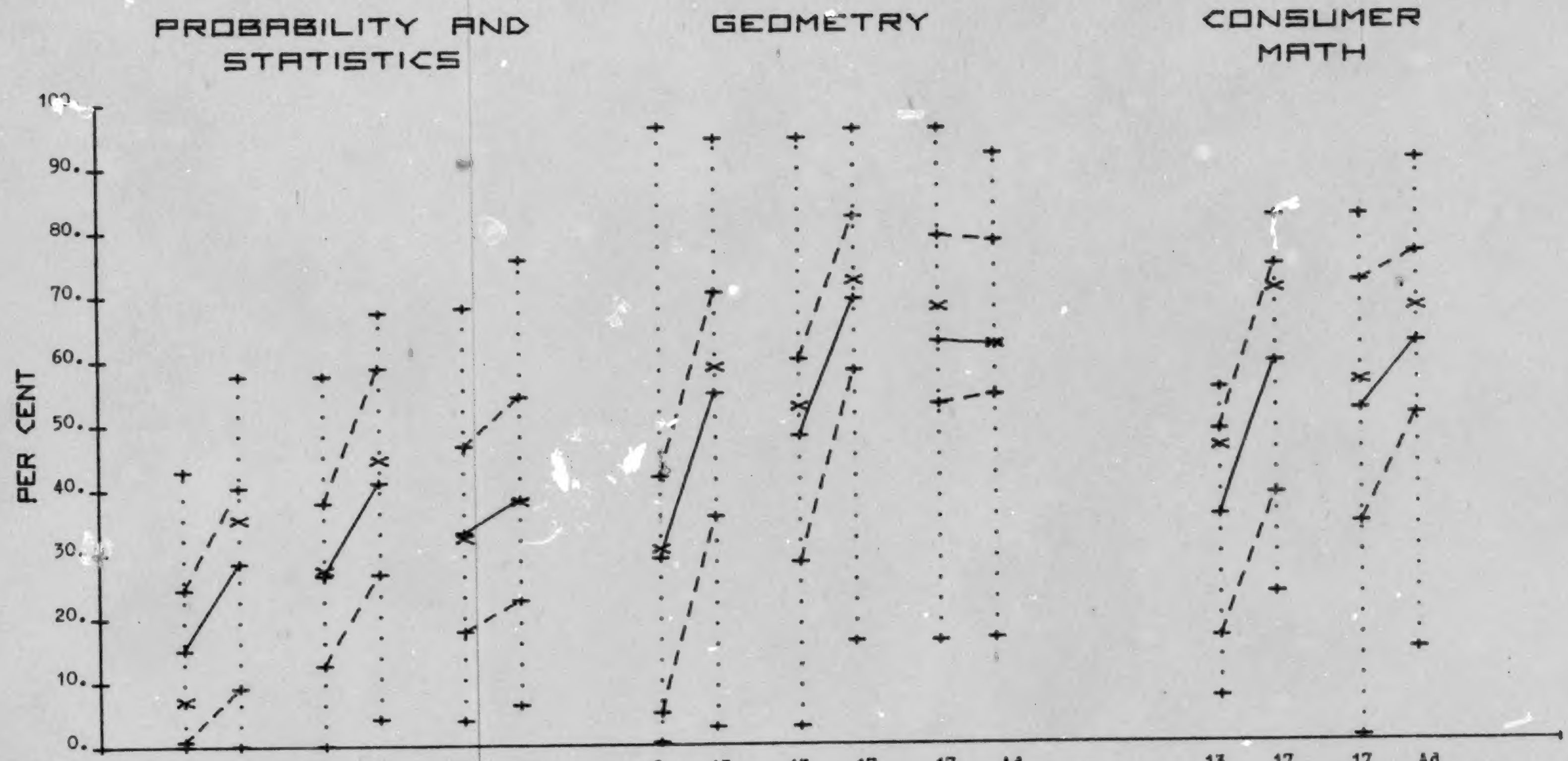
NATIONAL																		
MEAN P	39	74	50	67	63	61	47	72	57	72	62	66	27	59	40	62	58	46
MEDIAN P	29	80	54	72	69	63	45	73	59	78	62	69	26	75	39	67	64	49
GROUP																		
MEAN P	38	74	50	68	65	65	50	74	59	75	67	72	28	58	40	63	60	52
MEDIAN P	29	77	55	71	70	68	49	76	58	80	70	75	28	71	40	70	65	55
NO. OBS.	43		[illegible]		43		22		19		32		5		24		21	

MALE



AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	13	17	17	Ad
NATIONAL																
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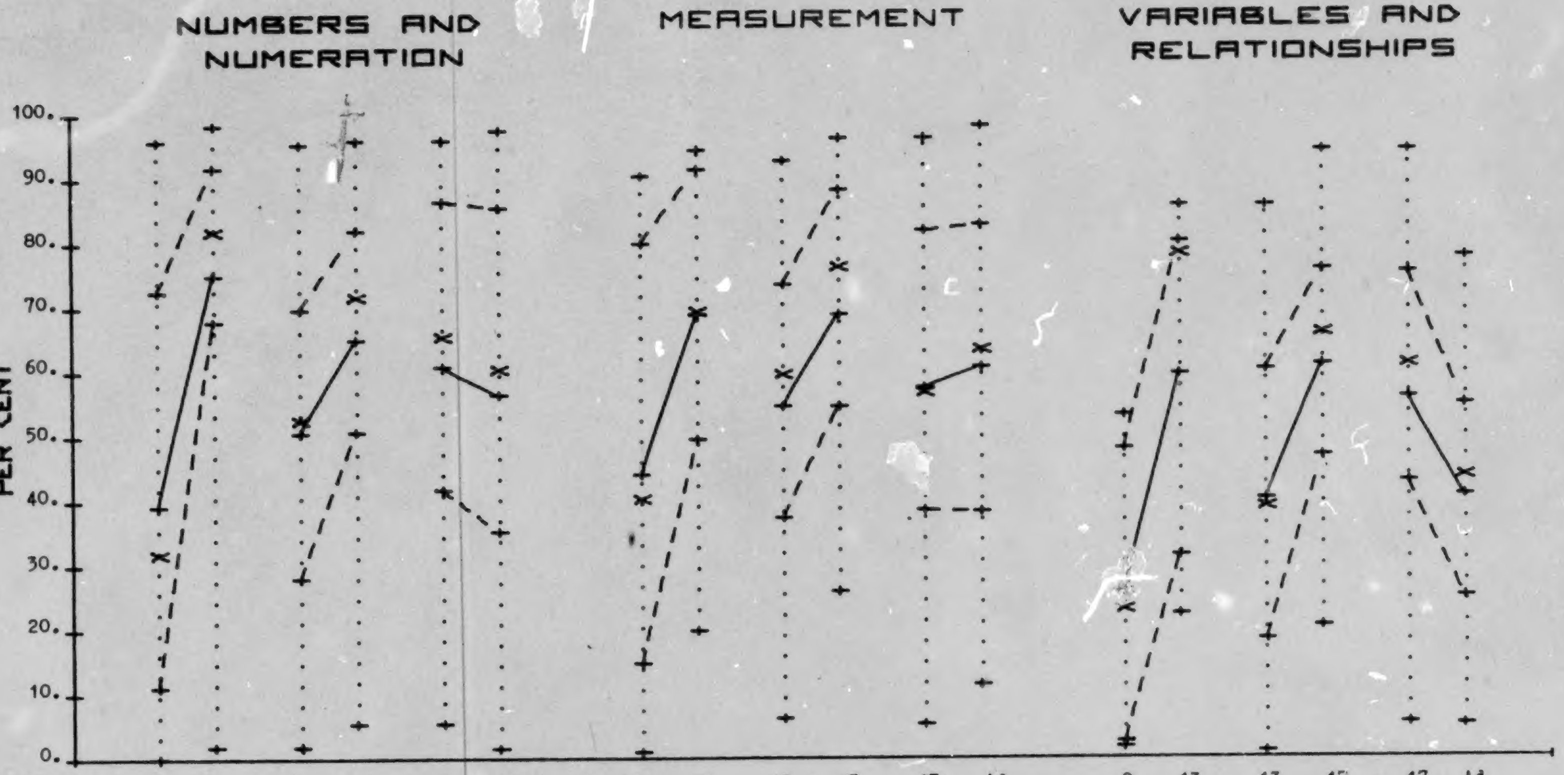
MEDIAN P	6	28	27	42	29	32	28	58	47	70	60	53	47	66	54	61
GROUP																
MEAN P	15	29	27	41	33	38	29	55	48	69	63	62	35	59	52	62
MEDIAN P	7	35	27	45	32	38	31	59	53	72	68	62	46	70	56	67
NO. OBS.	5		10		12		27		29		29		12		34	

FEMALE



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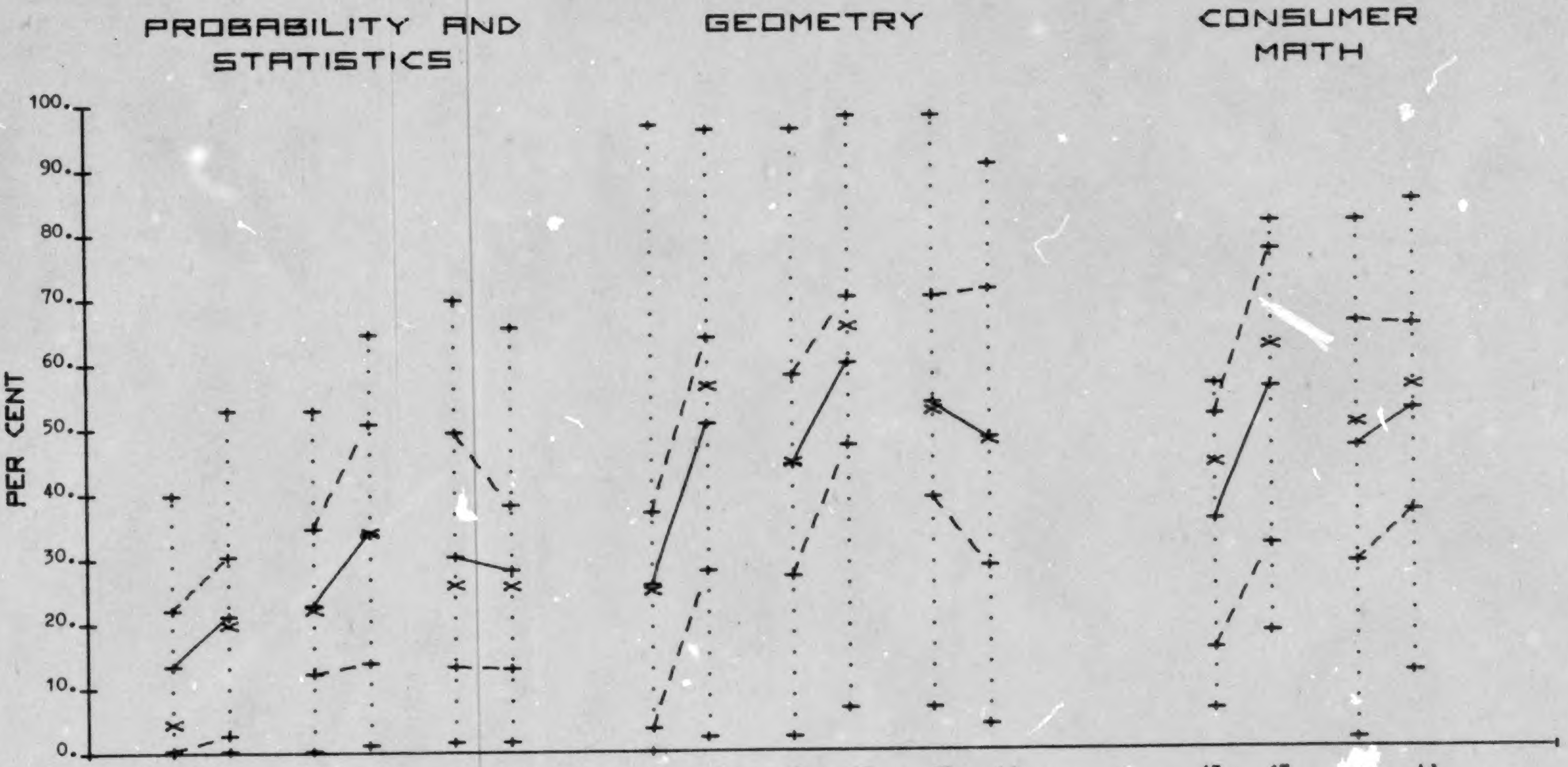
NATIONAL																		
MEAN P	39	74	50	67	63	61	47	72	57	72	62	66	27	59	40	62	58	46
MEDIAN P	29	80	54	72	69	63	45	73	59	78	62	69	26	75	39	67	64	49
GROUP																		
MEAN P	39	75	51	65	61	57	44	69	55	69	58	61	26	60	40	61	56	41
MEDIAN P	32	82	53	72	66	60	40	69	60	76	57	64	23	78	39	66	61	44
NO. OBS.	43		68		43		22		19		32		5		24		21	

FEMALE



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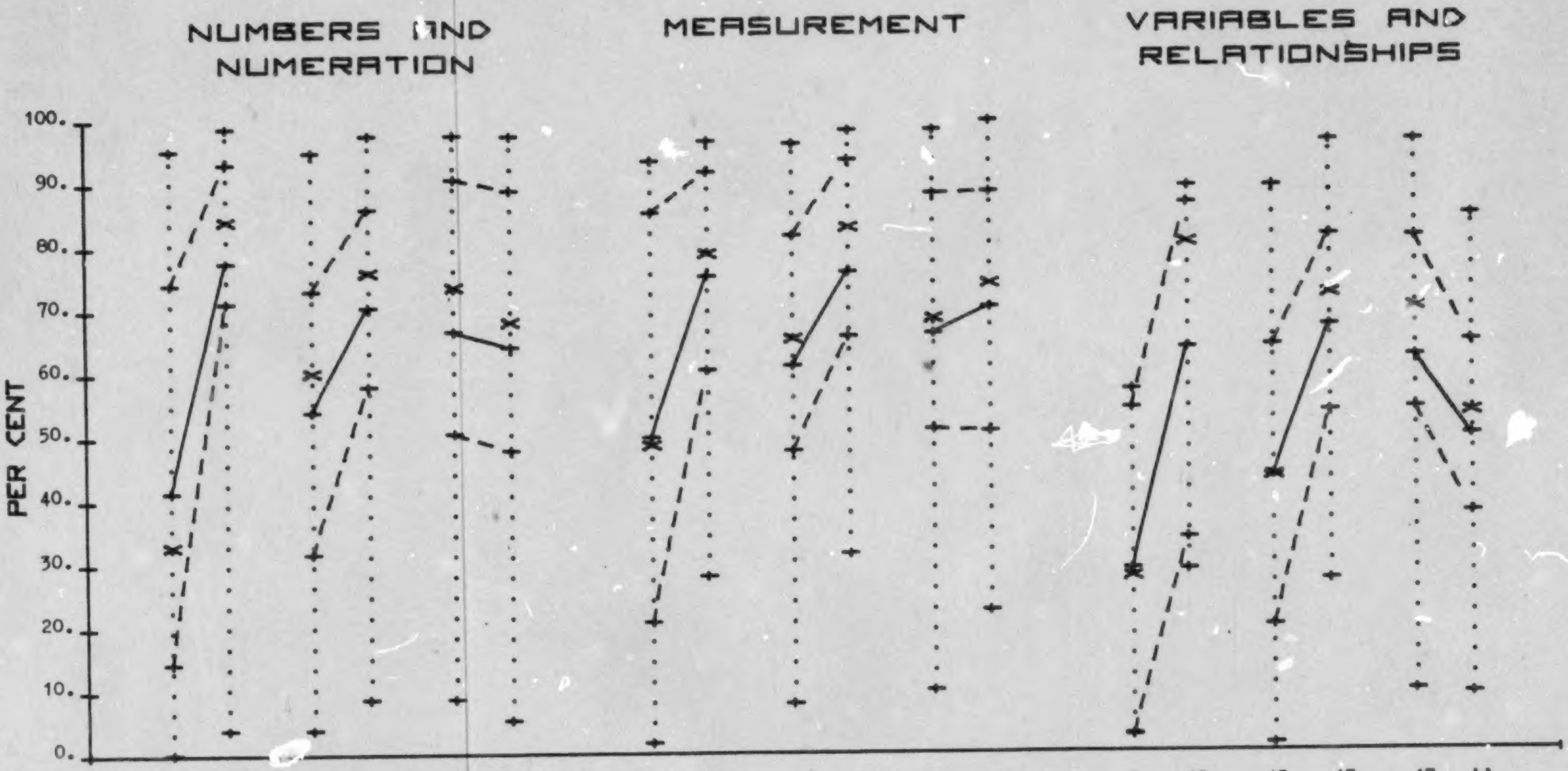
NATIONAL																
MEAN P	14	25	25	38	32	33	28	53	46	65	58	55	36	57	49	57
MEDIAN P	6	28	27	42	29	32	28	58	47	70	60	53	47	66	54	61
GROUP																
MEAN P	13	21	23	34	30	28	26	51	44	60	54	48	35	56	47	52
MEDIAN P	5	20	22	34	26	26	25	56	45	66	52	48	44	62	50	56
NO. OBS.	5		10		12		27		29		29		12		34	

WHITE



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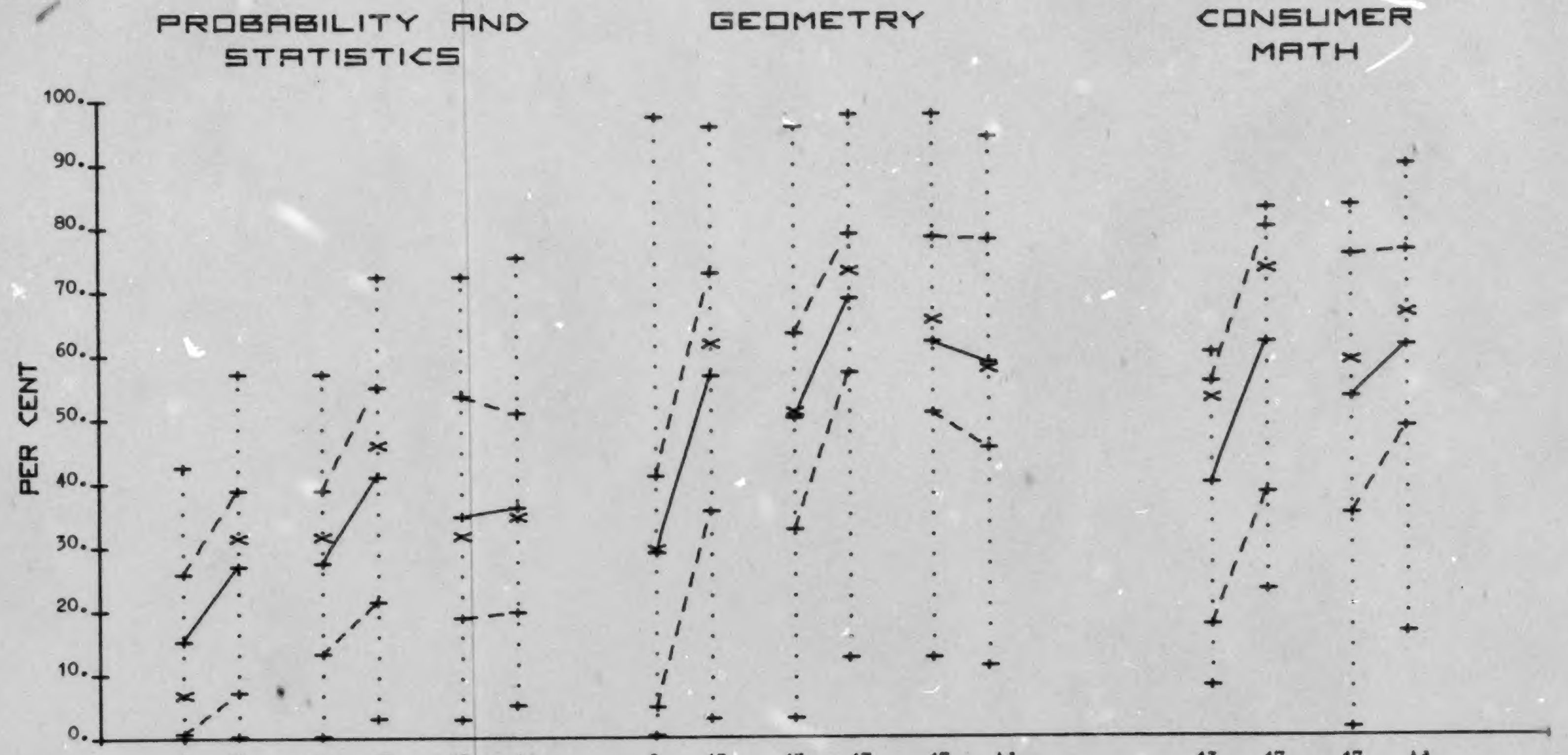
NATIONAL																		
MEAN P	39	74	50	67	63	61	47	72	57	72	62	66	27	59	40	62	58	46
MEDIAN P	29	80	54	72	69	63	45	73	59	78	62	69	26	75	39	67	64	49
GROUP																		
MEAN P	41	78	54	71	67	64	50	75	61	76	66	70	29	64	44	67	62	50
MEDIAN P	33	84	60	76	74	68	49	79	65	83	68	74	28	80	43	72	70	53
NO. OBS.	43		68		43		22		19		32		5		24		21	

WHITE



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NATIONAL																
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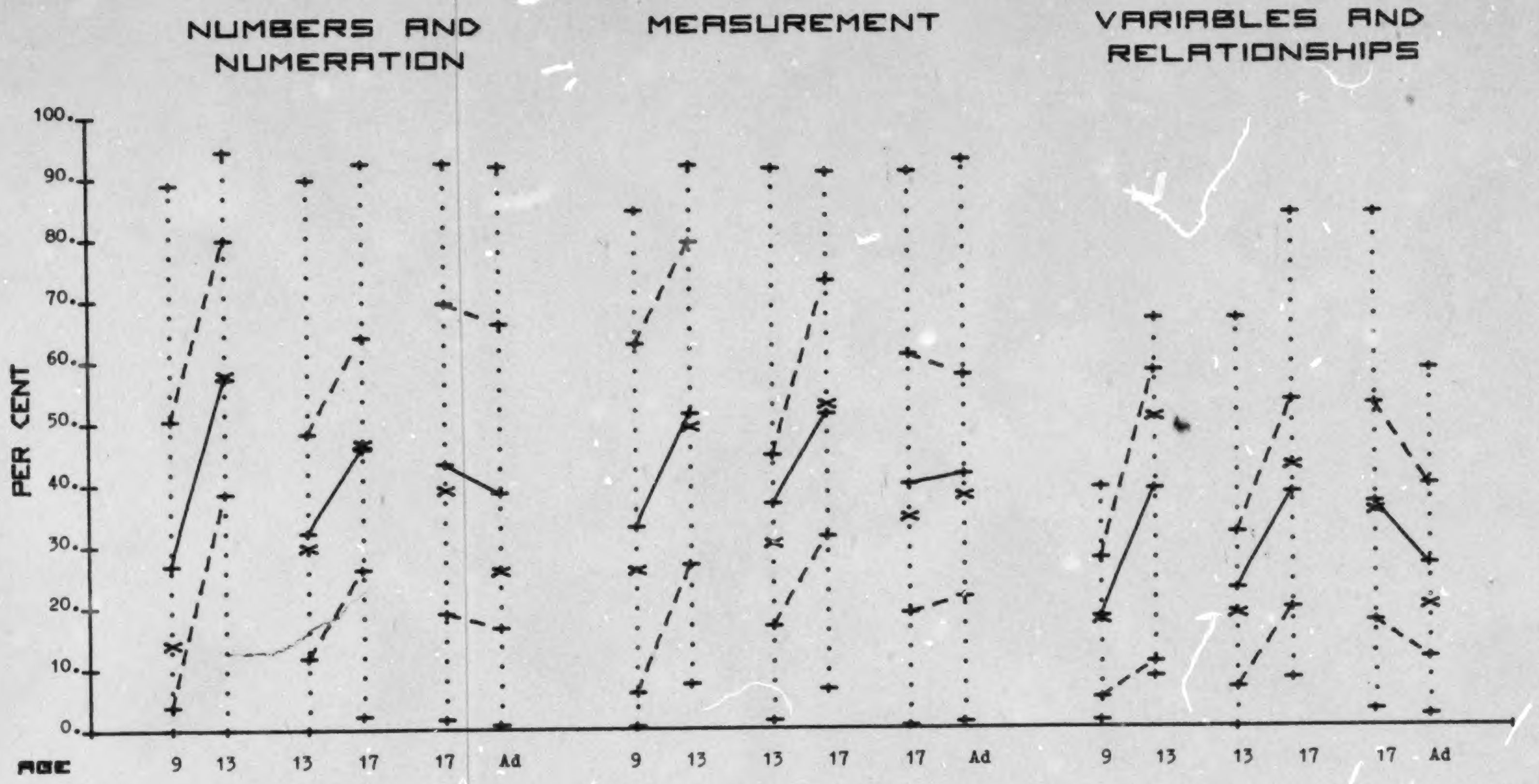
MEDIAN P	6	28	27	42	29	32	28	58	47	70	60	53	47	66	54	61
GROUP																
MEAN P	15	27	28	41	35	36	29	57	50	69	62	59	40	62	53	61
MEDIAN P	7	31	32	46	32	35	30	62	51	73	65	58	53	73	59	66
NO. OBS.	5		10		12		27		29		29		12		34	

BLACK



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NATIONAL																		
MEAN P	39	74	50	67	63	61	47	72	57	72	62	66	27	59	40	62	58	46
MEDIAN P	29	80	54	72	69	63	45	73	59	78	62	69	26	75	39	67	64	49
GROUP																		
MEAN P	27	57	32	46	43	39	33	51	37	51	40	41	18	39	23	38	37	26
MEDIAN P	14	58	30	47	39	26	26	49	30	53	34	38	18	50	18	42	35	20
NO. OBS.	43		68		43		22		19		32		5		24		21	

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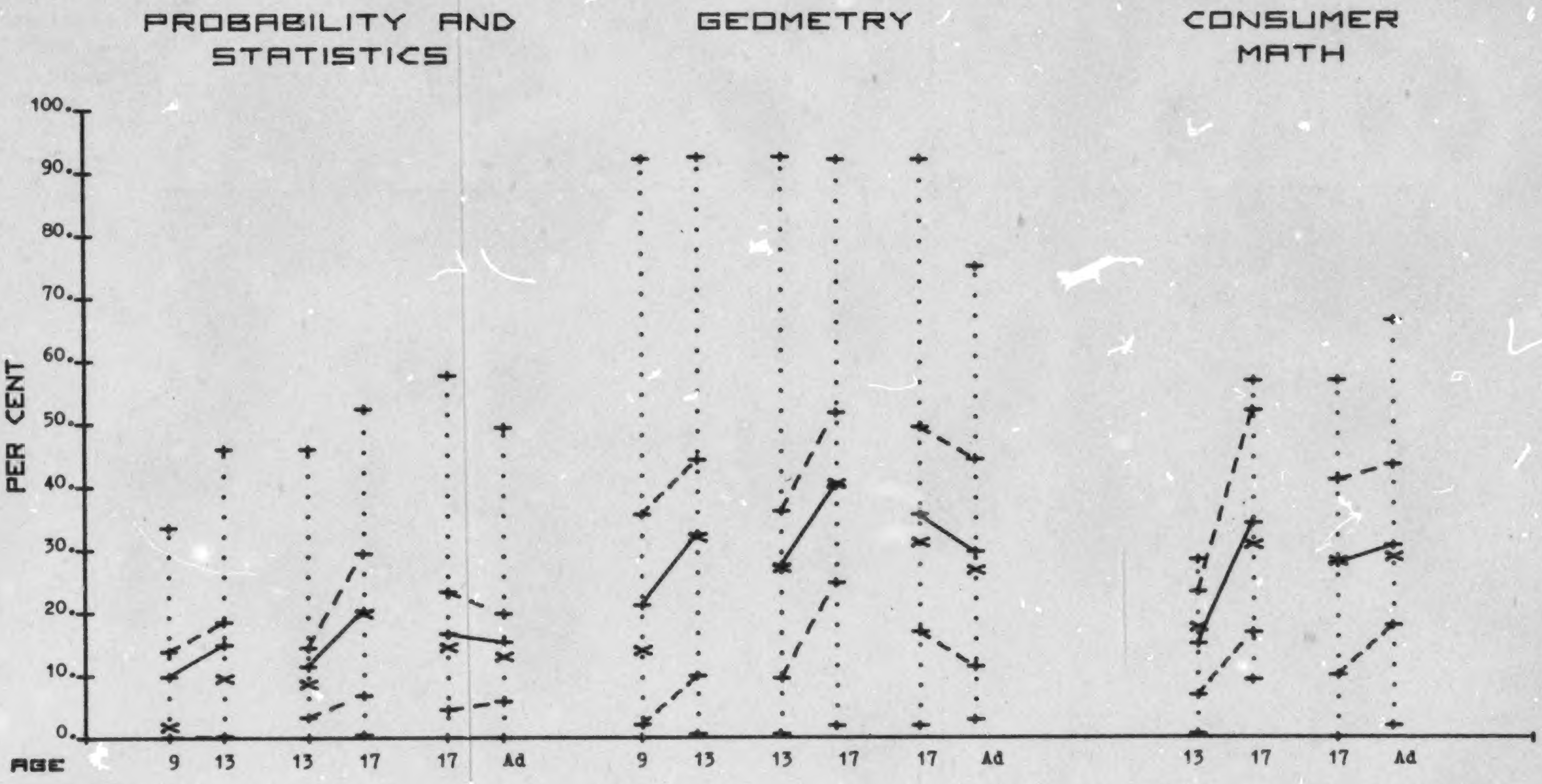
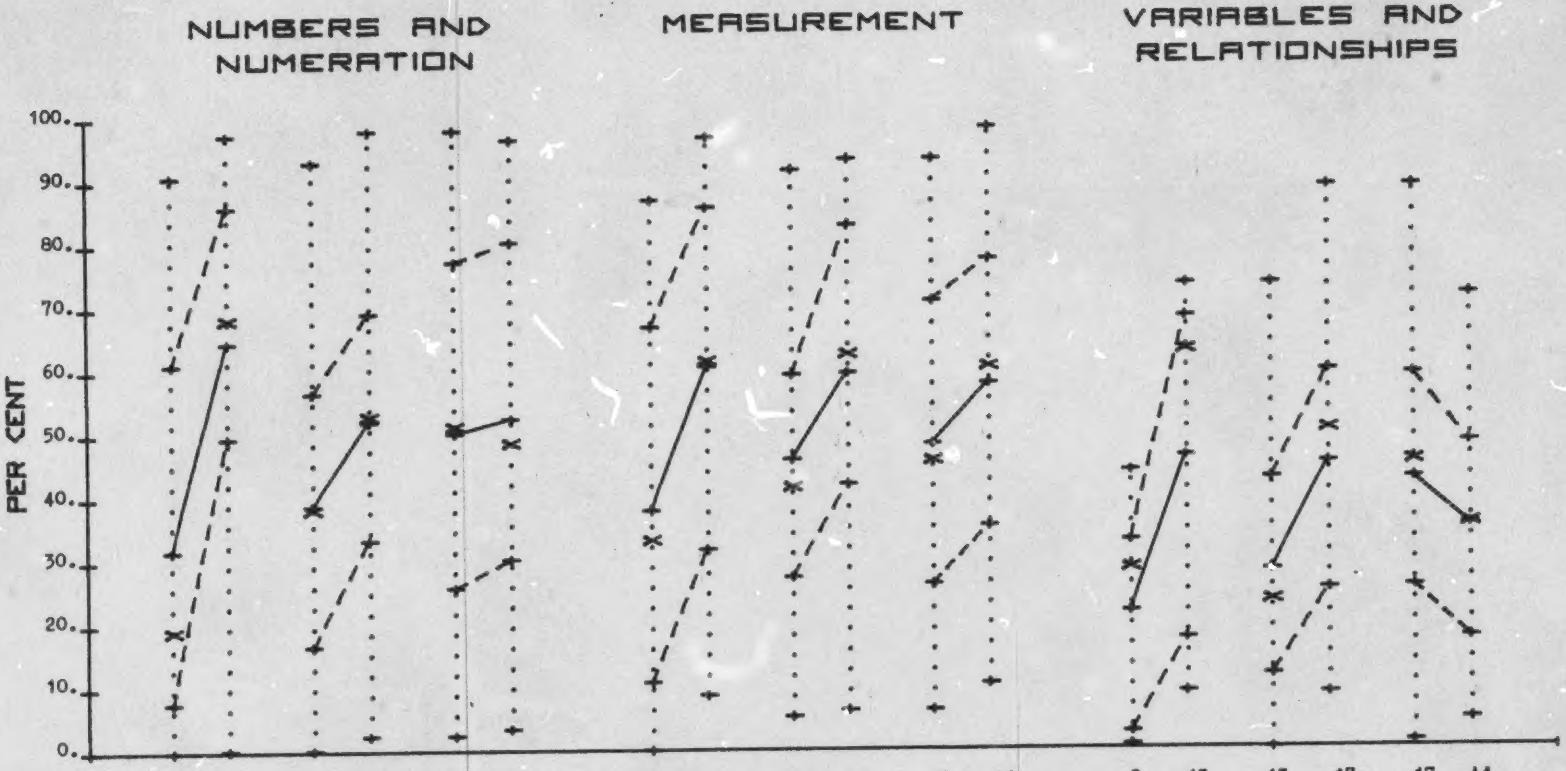


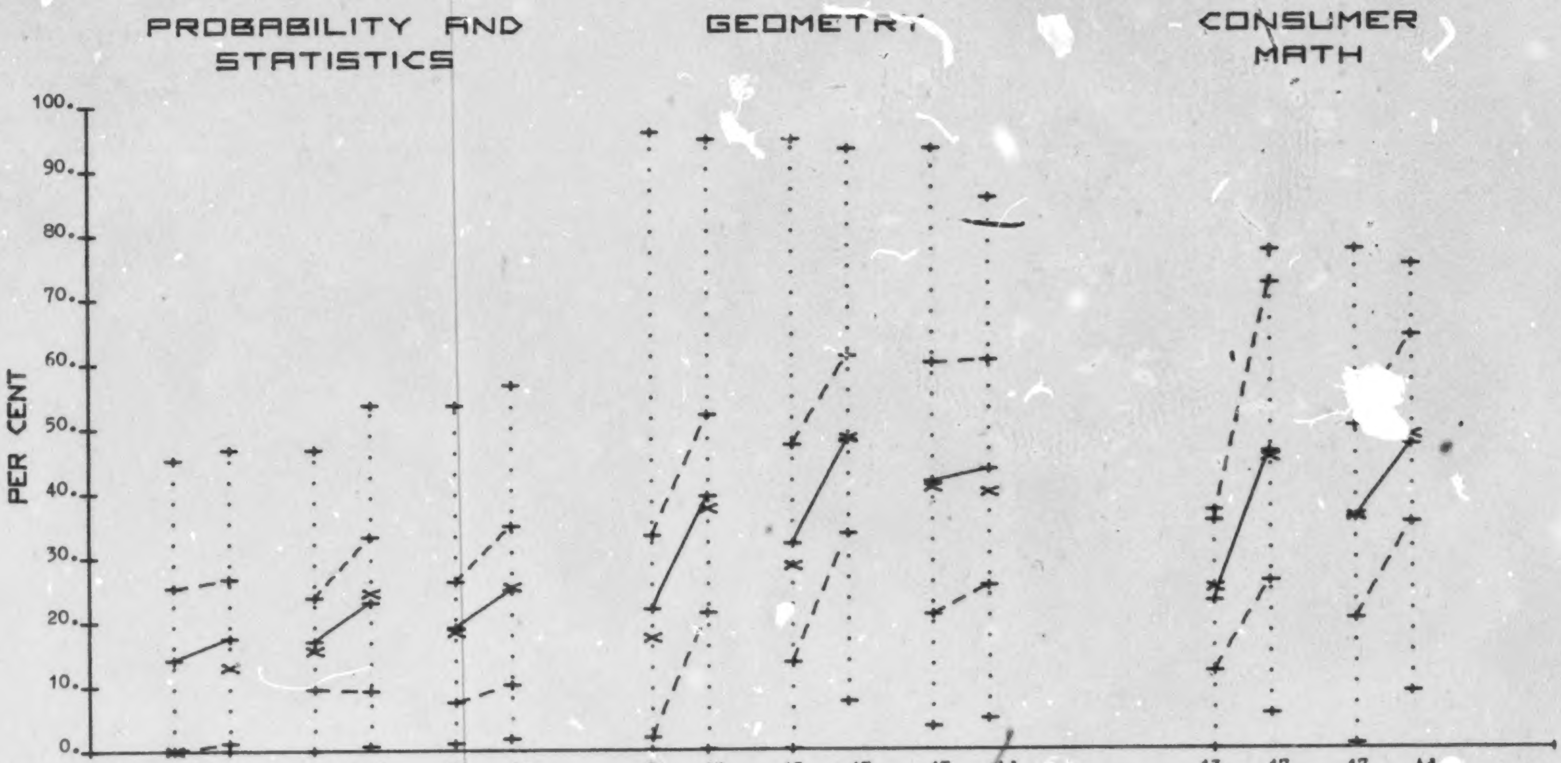
	PROBABILITY AND STATISTICS						GEOMETRY						CONSUMER MATH			
AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	13	17	17	Ad
NATIONAL																
MEAN P	14	25	25	38	32	33	28	53	46	65	58	55	36	57	49	57
MEDIAN P	6	28	27	42	29	32	28	58	47	70	60	53	47	66	54	61
GROUP																
MEAN P	10	15	11	20	17	15	21	32	27	40	36	30	15	34	28	31
MEDIAN P	2	10	9	20	14	13	14	32	27	40	31	27	18	31	28	29
NO. OBS.	5		10		12		27		29		29		12		34	

NO HIGH SCHOOL



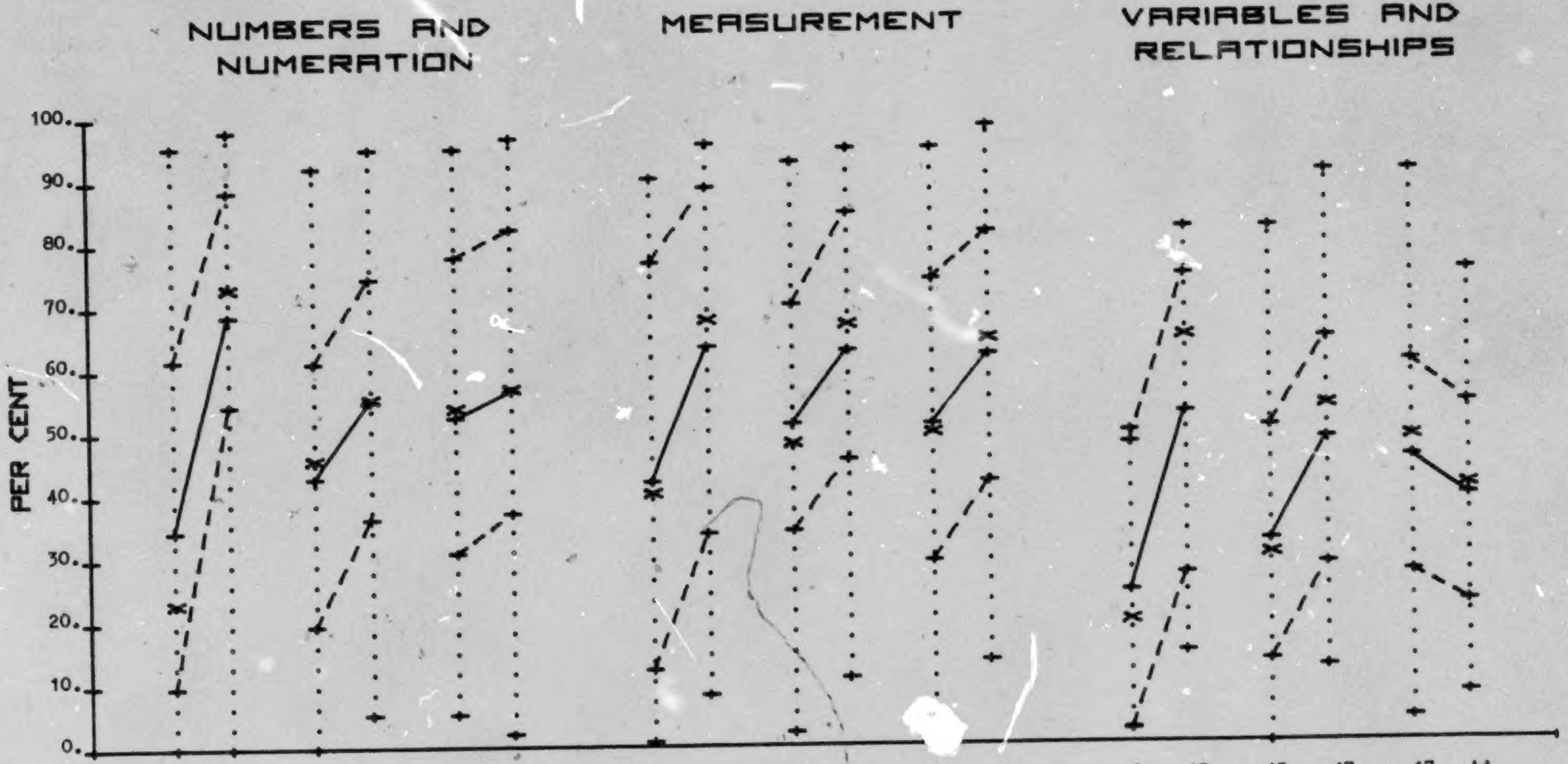
AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	9	13	13	17	17	Ad
NATIONAL																		
MEAN P	39	74	50	67	63	61	47	72	57	72	62	66	27	59	40	62	58	46
MEDIAN P	29	80	54	72	69	63	45	73	59	78	62	69	26	75	39	67	64	49
GROUP																		
MEAN P	32	65	39	52	50	53	38	61	46	60	48	58	22	46	28	45	43	35
MEDIAN P	19	68	38	53	51	49	33	62	42	63	46	61	29	63	23	50	45	35
NO. OBS.	43		68		43		22		19		32		5		24		21	

NO HIGH SCHOOL



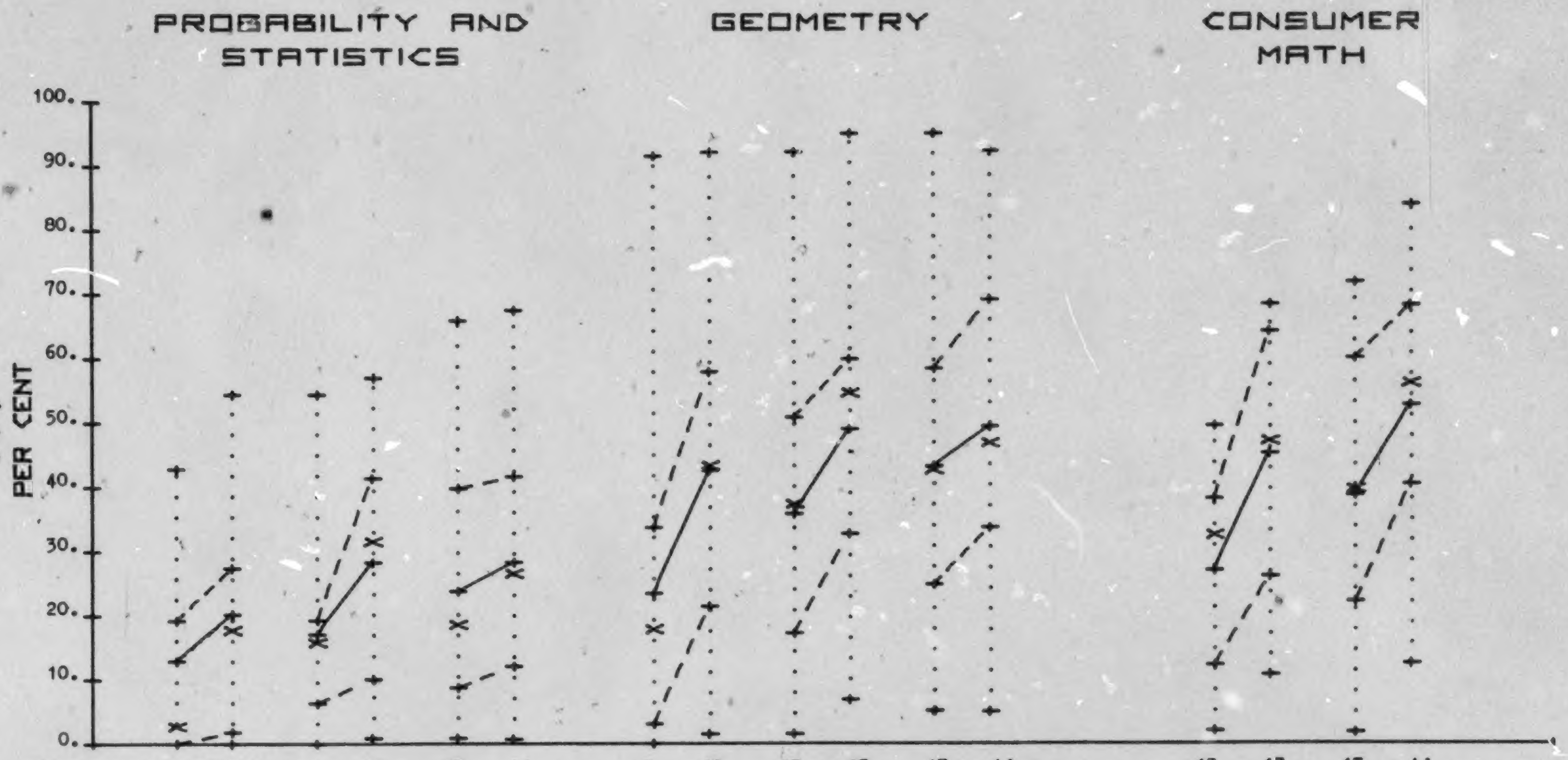
	PROBABILITY AND STATISTICS						GEOMETRY						CONSUMER MATH			
AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	13	17	17	Ad
NATIONAL																
MEAN P	14	25	25	38	32	33	28	53	46	65	58	55	36	57	49	57
MEDIAN P	6	28	27	42	29	32	28	58	47	70	60	53	47	66	54	61
GROUP																
MEAN P	14	18	17	23	19	25	22	39	32	48	42	44	23	46	36	47
MEDIAN P	0	13	16	24	18	25	17	37	29	48	41	40	25	45	36	49
NO. OBS.	5		10		12		27		29		29		12		34	

SOME HIGH SCHOOL



AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	9	13	13	17	17	Ad
NATIONAL																		
MEAN P	39	74	50	67	63	61	47	72	57	72	62	66	27	59	40	62	58	46
MEDIAN P	29	80	54	72	69	63	45	73	59	78	62	69	26	75	39	67	64	49
GROUP																		
MEAN P	34	63	43	55	52	57	42	63	51	63	51	62	24	52	32	48	45	39
MEDIAN P	23	73	46	55	54	57	40	68	48	67	50	64	20	65	30	53	48	41
NO. OBS.	43		68		43		22		19		32		5		24		21	

SOME HIGH SCHOOL



AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	13	17	17	Ad
NATIONAL																
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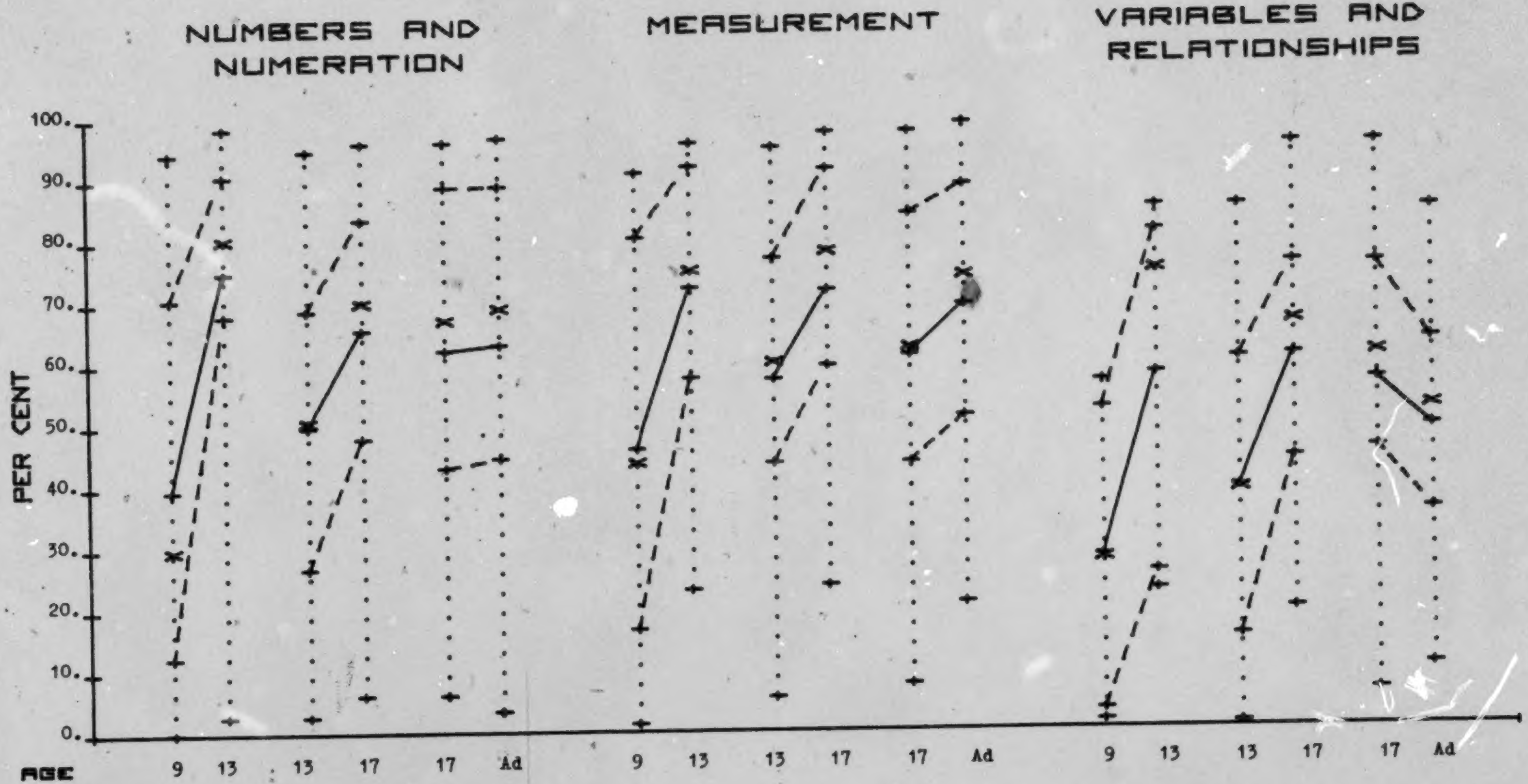
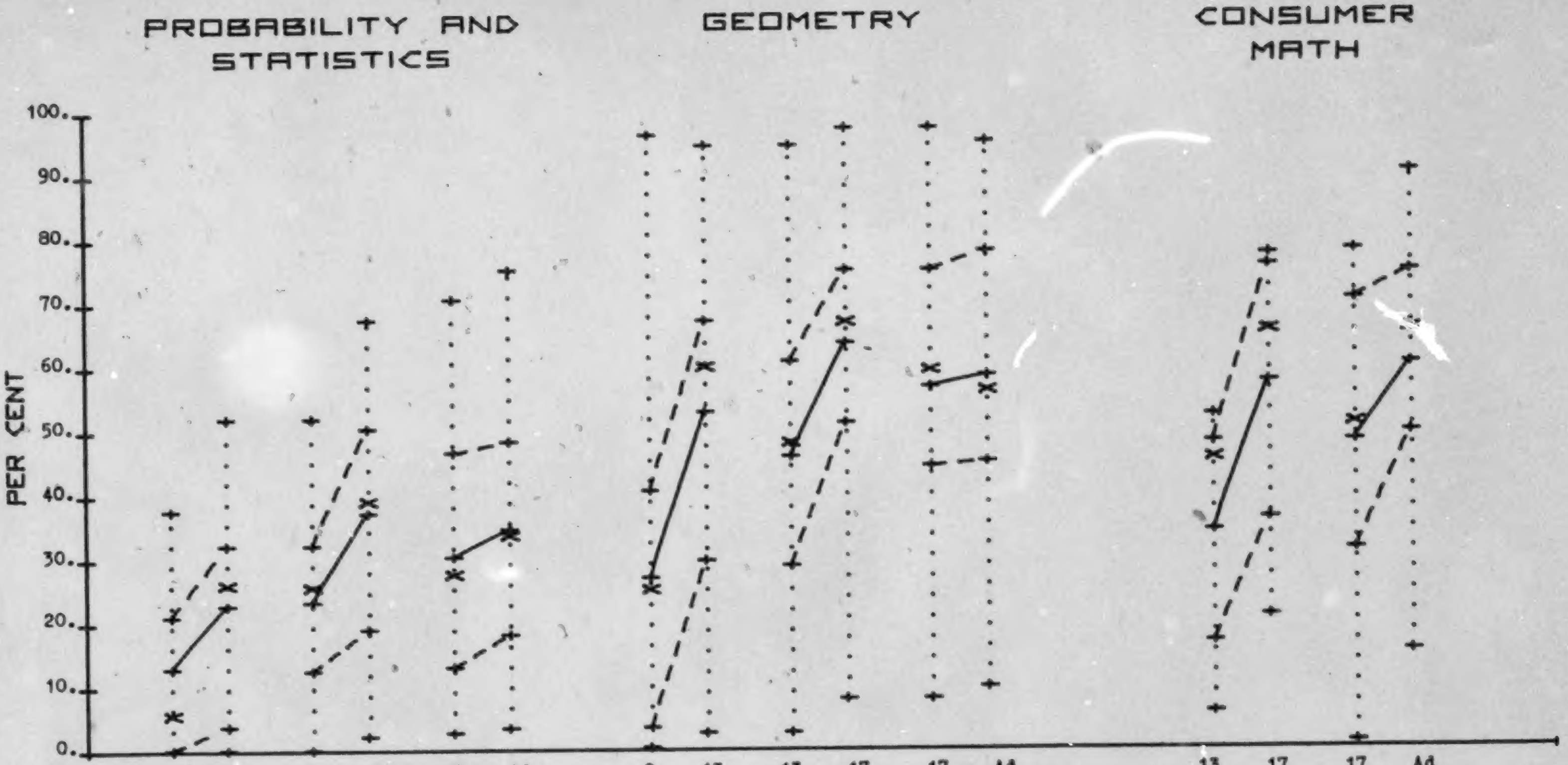
MEDIAN P	6	28	27	42	29	32	28	58	47	70	60	53	47	66	54	61
GROUP																
MEAN P	13	20	17	28	24	28	23	43	36.	49	43	49	27	45	39	53
MEDIAN P	3	18	16	32	19	27	18	43	37	55	43	47	33	47	40	56
NO. OBS.	5		10		12		27		29		29		12		34	

GRADUATED HIGH SCHOOL



	NUMBERS AND NUMERATION						MEASUREMENT						VARIABLES AND RELATIONSHIPS					
AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	9	13	13	17	17	Ad
NATIONAL																		
MEAN P	39	74	50	67	63	61	47	72	57	72	62	66	27	59	40	62	58	46
MEDIAN P	29	80	54	72	69	63	45	73	59	78	62	69	26	75	39	67	64	49
GROUP																		
MEAN P	40	75	50	66	62	63	46	72	57	72	61	69	[illegible]	58	39	61	56	49
MEDIAN P	30	80	51	70	67	69	44	75	60	78	62	74	28	75	39	66	61	52
NO. OBS.	43		68		43		22		19		32		5		24		21	

GRADUATED HIGH SCHOOL



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NATIONAL																
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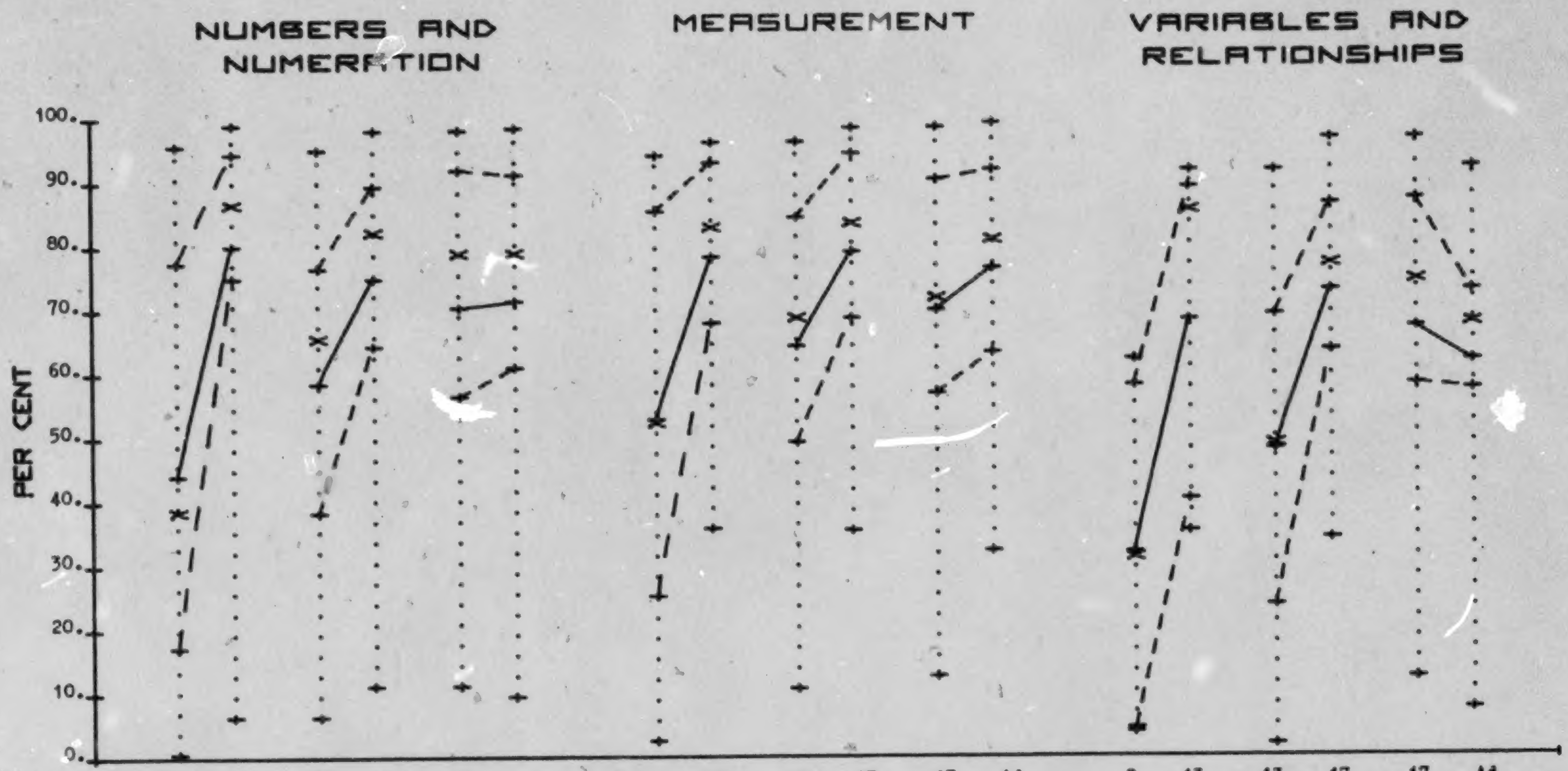
MEDIAN P	6	28	27	42	29	32	28	58	47	70	60	53	47	66	54	61
GROUP																
MEAN P	13	23	23	37	30	35	27	53	46	64	57	59	34	58	48	60
MEDIAN P	6	26	26	39	28	34	25	60	48	67	60	56	46	66	51	66
NO. OBS.	5		10		12		27		29		29		12		34	

POST HIGH SCHOOL



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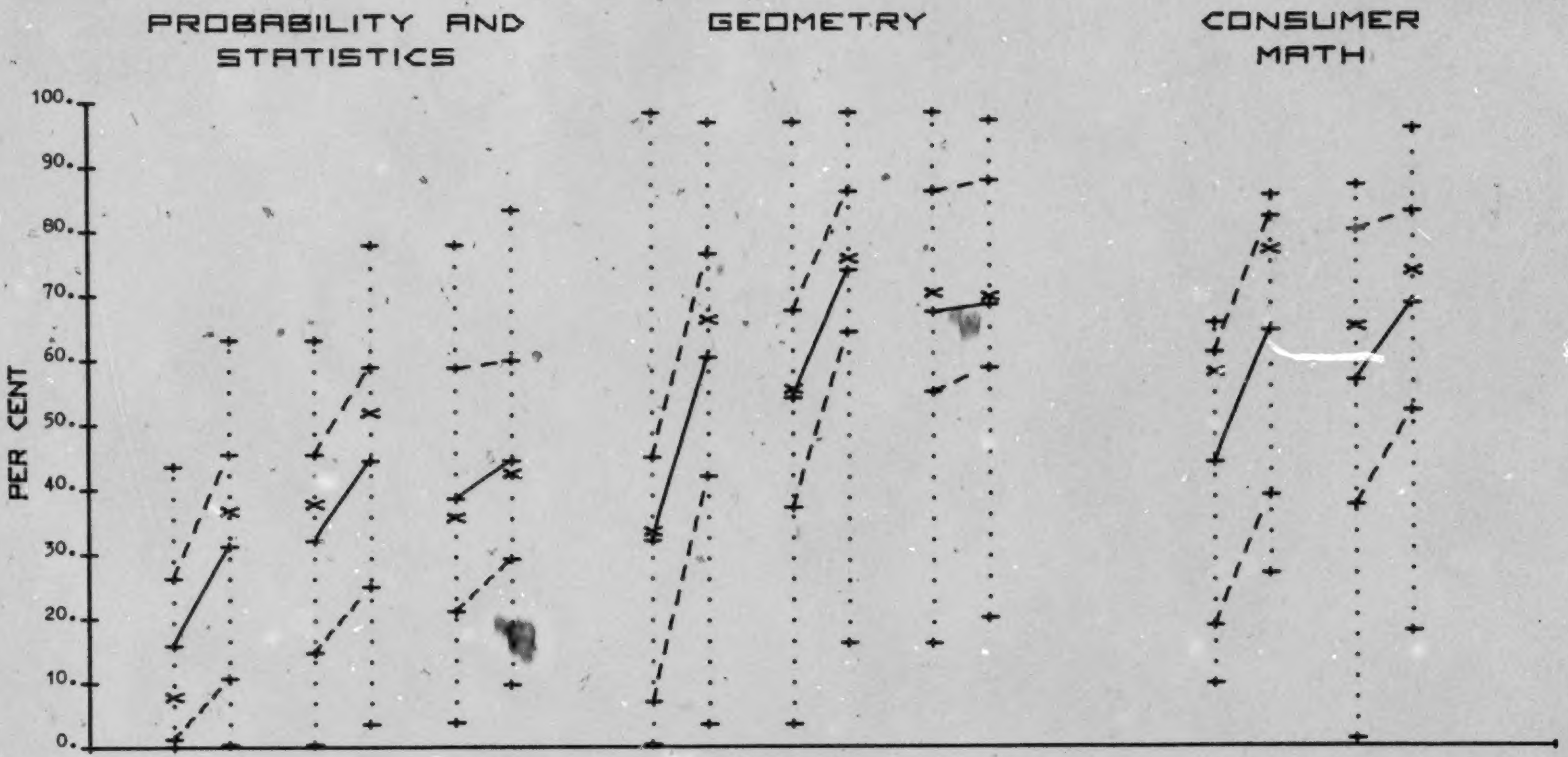
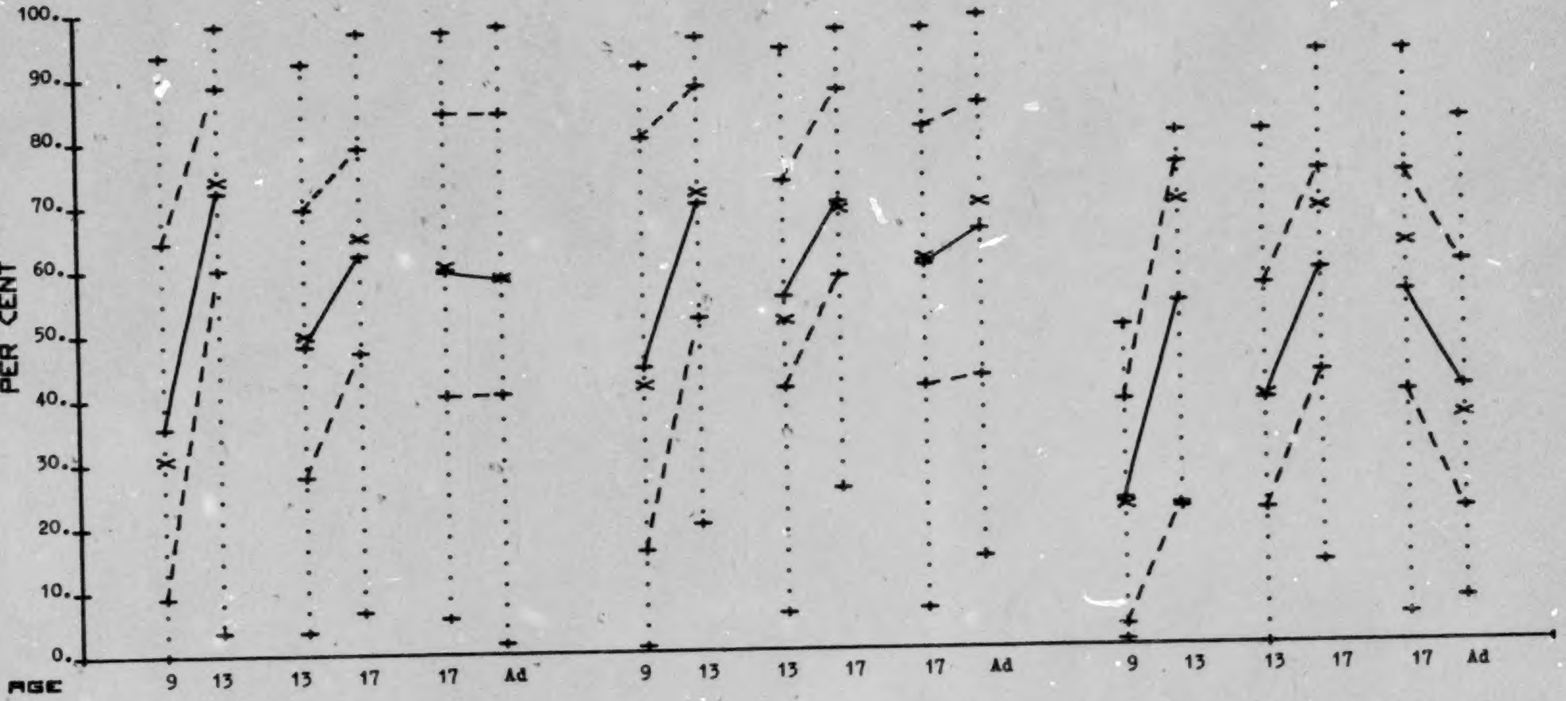
NATIONAL																		
MEAN P	39	74	50	67	63	61	47	72	57	72	62	66	27	59	40	62	58	46
MEDIAN P	29	80	54	72	69	63	45	73	59	78	62	69	26	75	39	67	64	49
GROUP																		
MEAN P	44	80	59	75	70	71	53	78	64	79	70	77	32	68	48	73	67	62
MEDIAN P	39	87	66	82	79	79	52	83	69	84	72	81	31	85	49	77	74	68
NO. OBS.	43		68		43		22		19		32		5		24		21	

POST HIGH SCHOOL



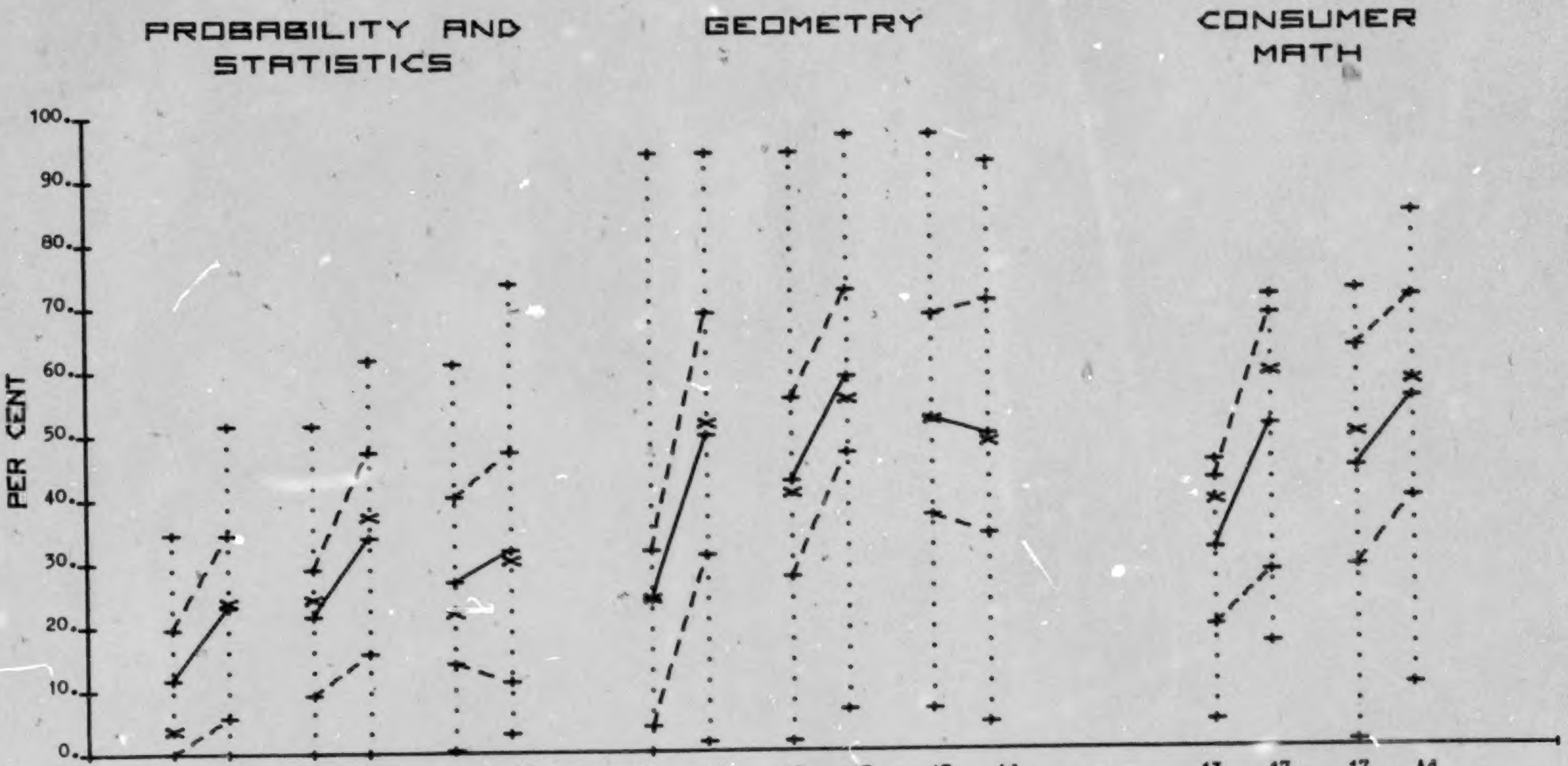
AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	13	17	17	Ad
NATIONAL																
MEAN P	14	25	25	38	32	33	28	53	46	65	58	55	36	57	49	57
MEDIAN P	6	28	27	42	29	32	28	58	47	70	60	53	47	66	54	61
GROUP																
MEAN P	16	31	32	44	39	44	32	60	54	74	67	69	44	65	57	69
MEDIAN P	8	37	38	52	36	42	33	66	55	76	70	70	58	77	65	74
NO. OBS.	5		10		12		27		29		29		12		34	

EXTREME RURAL



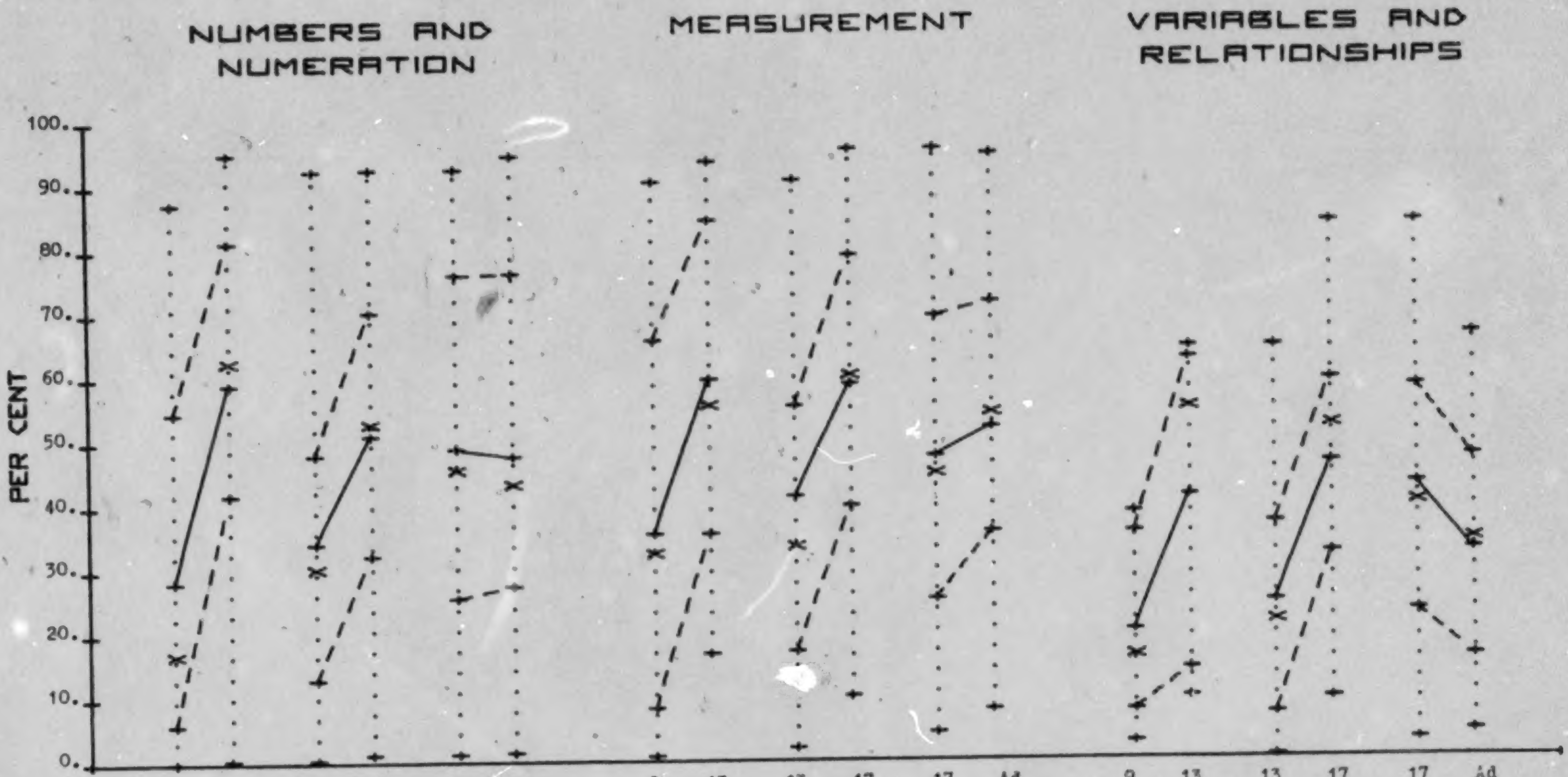
	NUMBERS AND NUMERATION						MEASUREMENT						VARIABLES AND RELATIONSHIPS					
AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	9	13	13	17	17	Ad
NATIONAL																		
MEAN P	39	74	50	67	63	61	47	72	57	72	62	66	27	59	40	62	58	46
MEDIAN P	29	80	54	72	69	63	45	73	59	78	62	69	26	75	39	67	64	49
GROUP																		
MEAN P	36	72	48	62	60	58	44	70	55	70	60	65	23	54	38	58	55	40
MEDIAN P	31	74	50	65	60	59	41	71	51	69	61	69	22	69	39	68	62	35
NO. OBS.	43		68		43		22		19		32		5		24		21	

EXTREME RURAL



AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	13	17	17	Ad
NATIONAL																
MEAN P	14	25	25	38	32	33	28	53	46	65	58	55	36	57	49	57
MEDIAN P	6	28	27	42	29	32	28	58	47	70	60	53	47	66	54	61
GROUP																
MEAN P	12	23	22	34	27	32	24	50	42	59	52	50	31	51	44	55
MEDIAN P	4	24	24	37	22	30	24	51	40	55	52	48	39	59	49	57
NO. OBS.	5		10		12		27		29		29		12		34	

LOW METRO

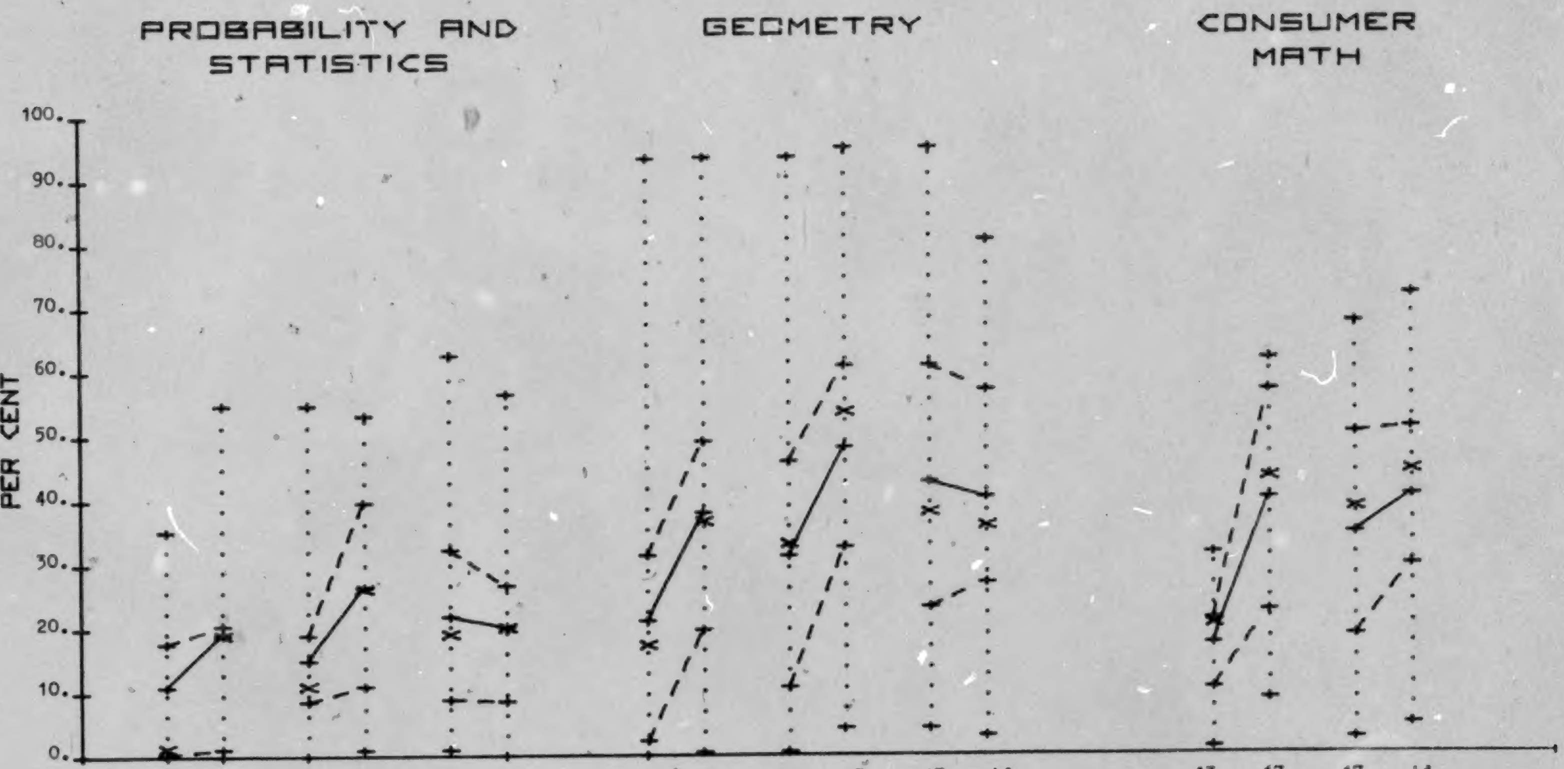

NUMBERS AND NUMERATION

MEASUREMENT

VARIABLES AND RELATIONSHIPS

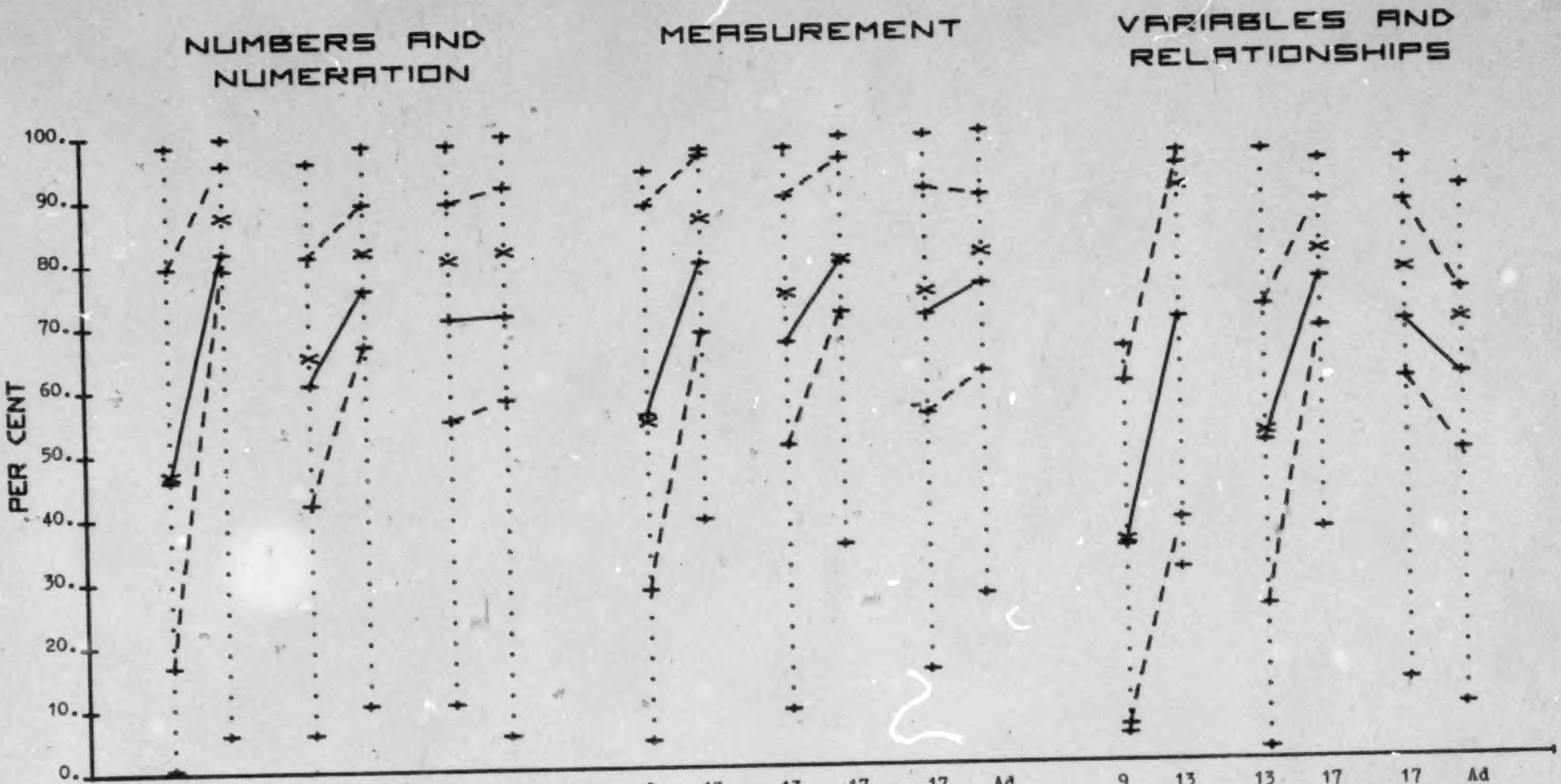
AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	9	13	13	17	17	Ad
NATIONAL																		
MEAN P	39	74	50	67	63	61	47	72	57	72	62	66	27	59	40	62	58	46
MEDIAN P	29	80	54	72	69	63	45	73	59	78	62	69	26	75	39	67	64	49
GROUP																		
MEAN P	28	59	34	51	49	48	36	60	41	59	48	52	20	41	25	46	43	32
MEDIAN P	17	63	30	53	46	43	32	56	34	60	45	54	16	55	22	52	40	34
NO. OBS.	43		68		43		22		19		32		5		24		21	

LOW METRO



AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	13	17	17	Ad
NATIONAL																
MEAN P	14	25	25	38	32	33	28	53	46	65	58	55	36	57	49	57
MEDIAN P	6	28	27	42	29	32	28	58	47	70	60	53	47	66	54	61
GROUP																
MEAN P	11	19	15	27	22	20	21	38	31	48	43	40	17	40	35	41
MEDIAN P	1	19	11	26	19	20	17	37	33	54	38	36	20	43	39	44
NO. OBS.	5		10		12		27		29		29		12		34	

HIGH METRO

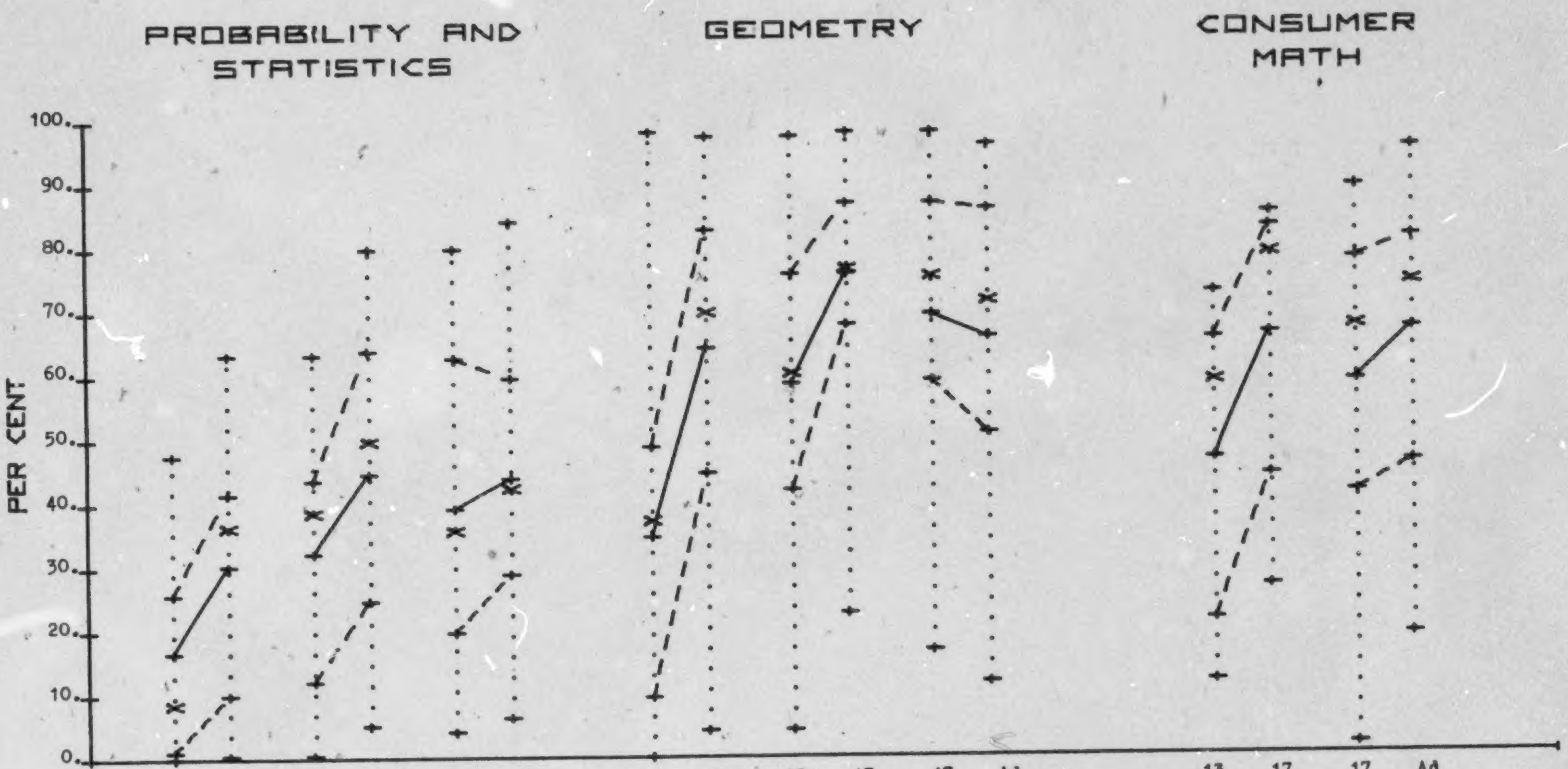

NUMBERS AND NUMERATION

MEASUREMENT

VARIABLES AND RELATIONSHIPS

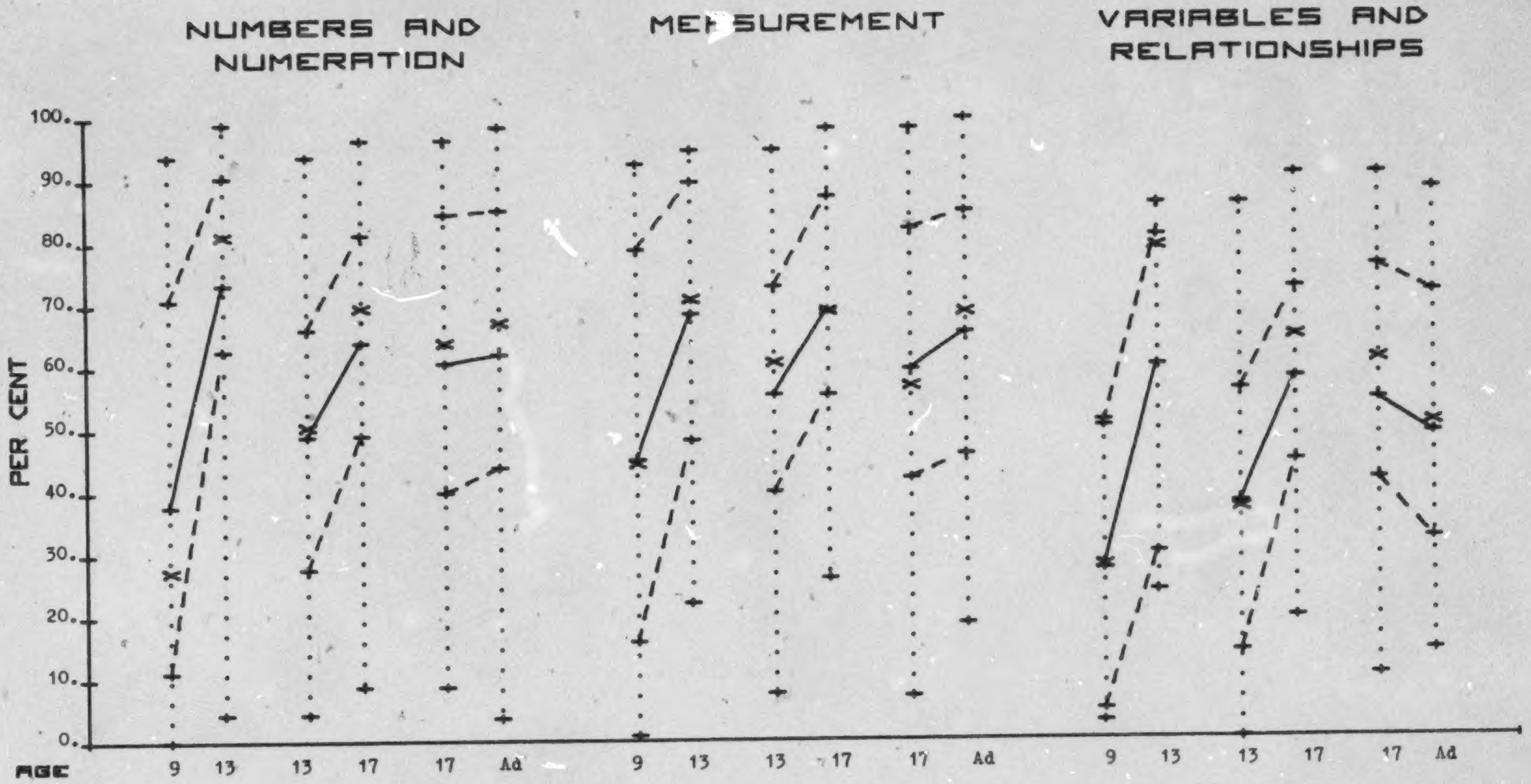
AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	9	13	13	17	17	Ad
NATIONAL																		
MEAN P	39	74	50	67	63	61	47	72	57	72	62	66	27	59	40	62	58	46
MEDIAN P	29	80	54	72	69	63	45	7*	59	78	62	69	26	75	39	67	64	49
GROUP																		
MEAN P	46	82	61	76	71	71	55	79	66	79	71	75	34	69	50	75	68	60
MEDIAN P	47	87	65	82	80	81	54	86	74	79	74	80	35	90	51	80	76	68
NO. OBS.	43		68		43		22		19		32		5		24		21	

HIGH METRO



	PROBABILITY AND STATISTICS						GEOMETRY						CONSUMER MATH			
AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	13	17	17	Ad
NATIONAL																
MEAN P	14	25	25	38	32	33	28	53	46	65	58	55	36	57	49	57
MEDIAN P	6	28	27	42	29	32	28	58	47	70	60	53	47	66	54	61
GROUP																
MEAN P	17	30	32	45	39	44	35	64	59	76	69	66	47	66	59	67
MEDIAN P	9	36	39	50	36	42	37	70	60	77	75	71	59	79	67	74
NO. OBS.	5		10		12		27		29		29		12		34	

MAIN BIG CITY



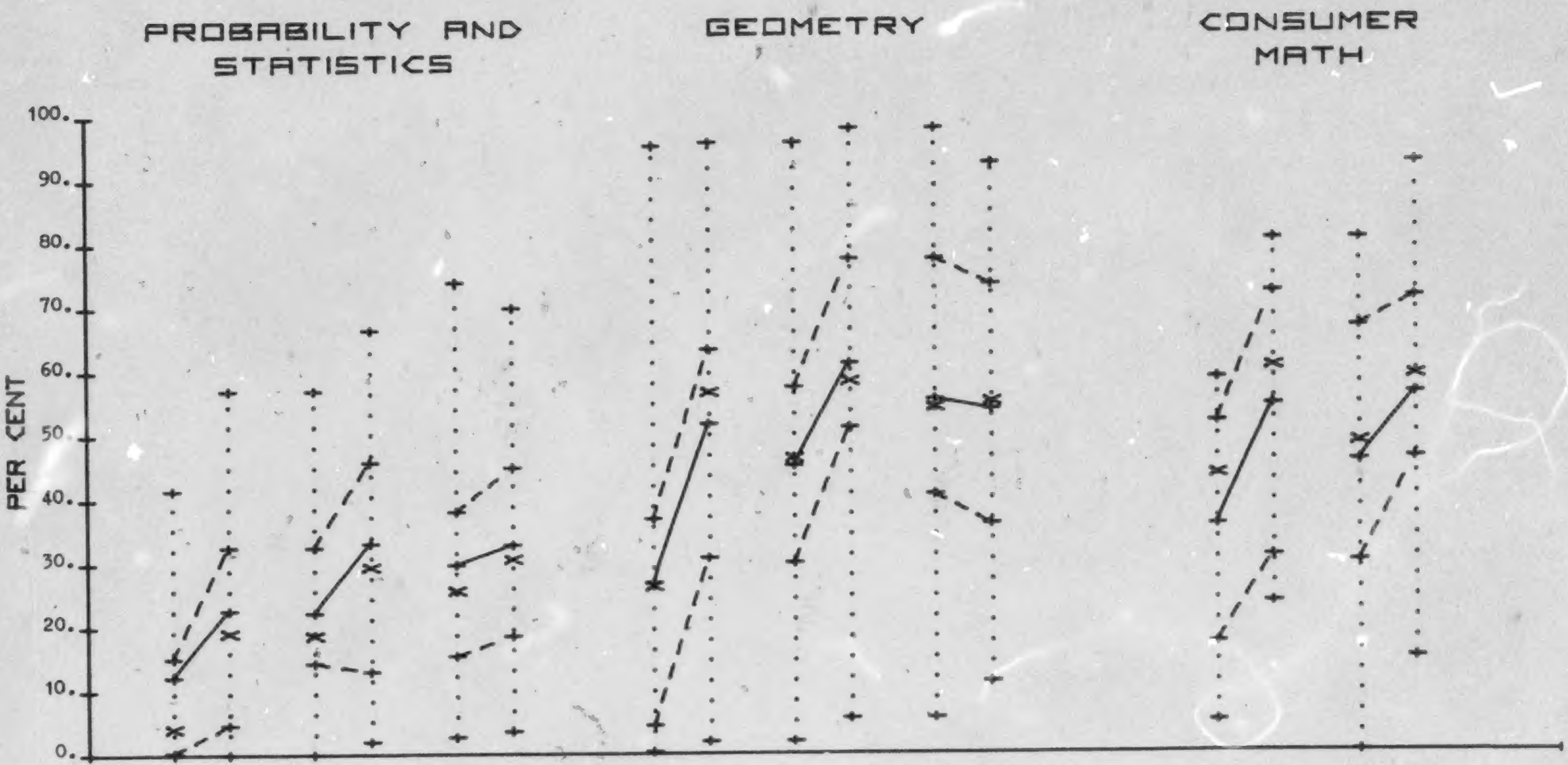
NUMBERS AND NUMERATION

MEASUREMENT

VARIABLES AND RELATIONSHIPS

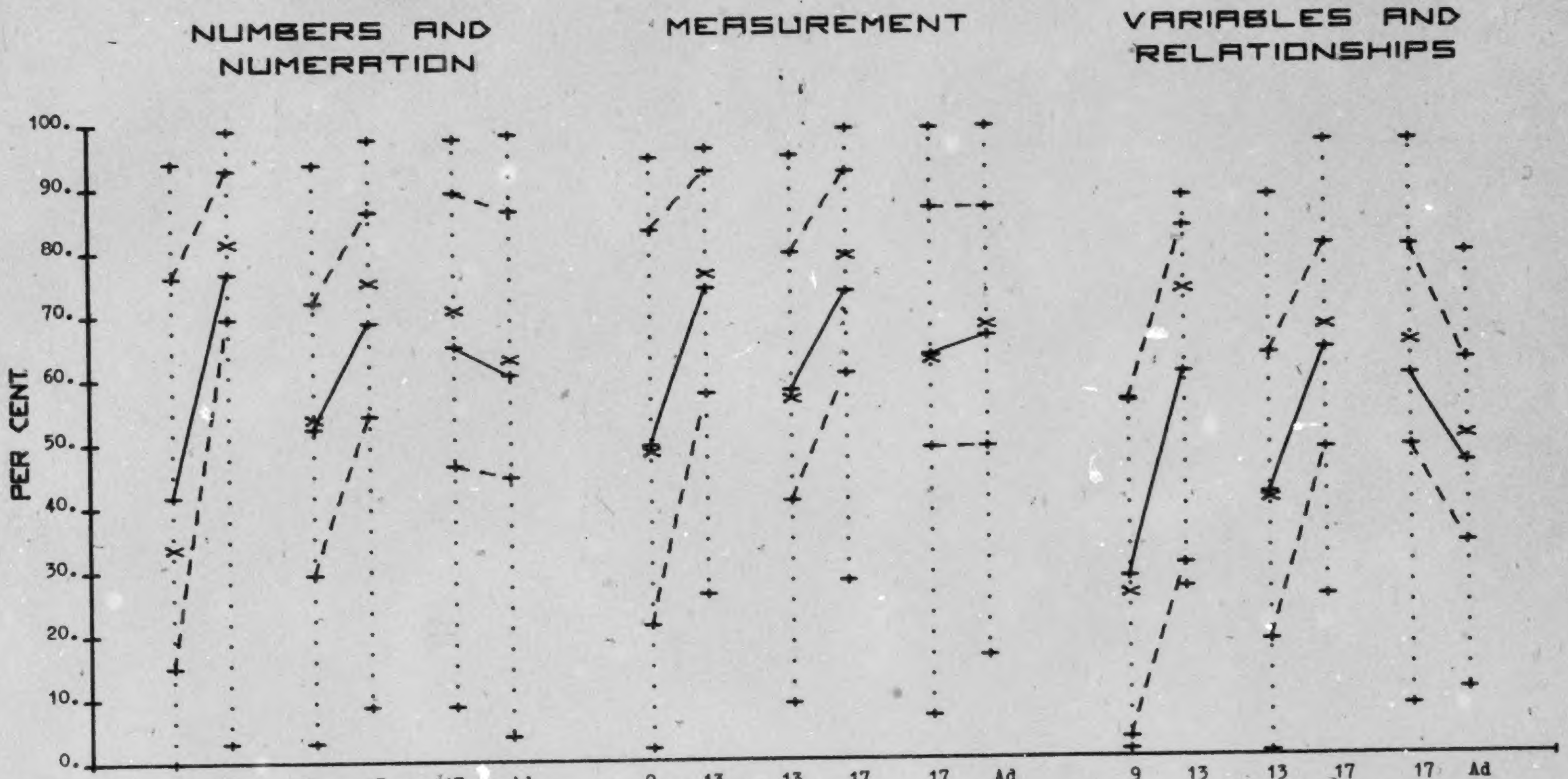
AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	9	13	13	17	17	Ad
NATIONAL																		
MEAN P	39	74	50	67	63	61	47	72	57	72	62	66	27	59	40	62	58	46
MEDIAN P	29	80	54	72	69	63	45	73	59	78	62	69	26	75	39	67	64	49
GROUP																		
MEAN P	38	73	49	64	61	62	45	68	55	69	59	65	27	60	38	58	54	49
MEDIAN P	27	81	51	70	64	67	44	71	61	69	57	69	28	79	37	64	61	50
NO. OBS.	43		68		43		22		19		32		5		24		21	

MAIN BIG CITY



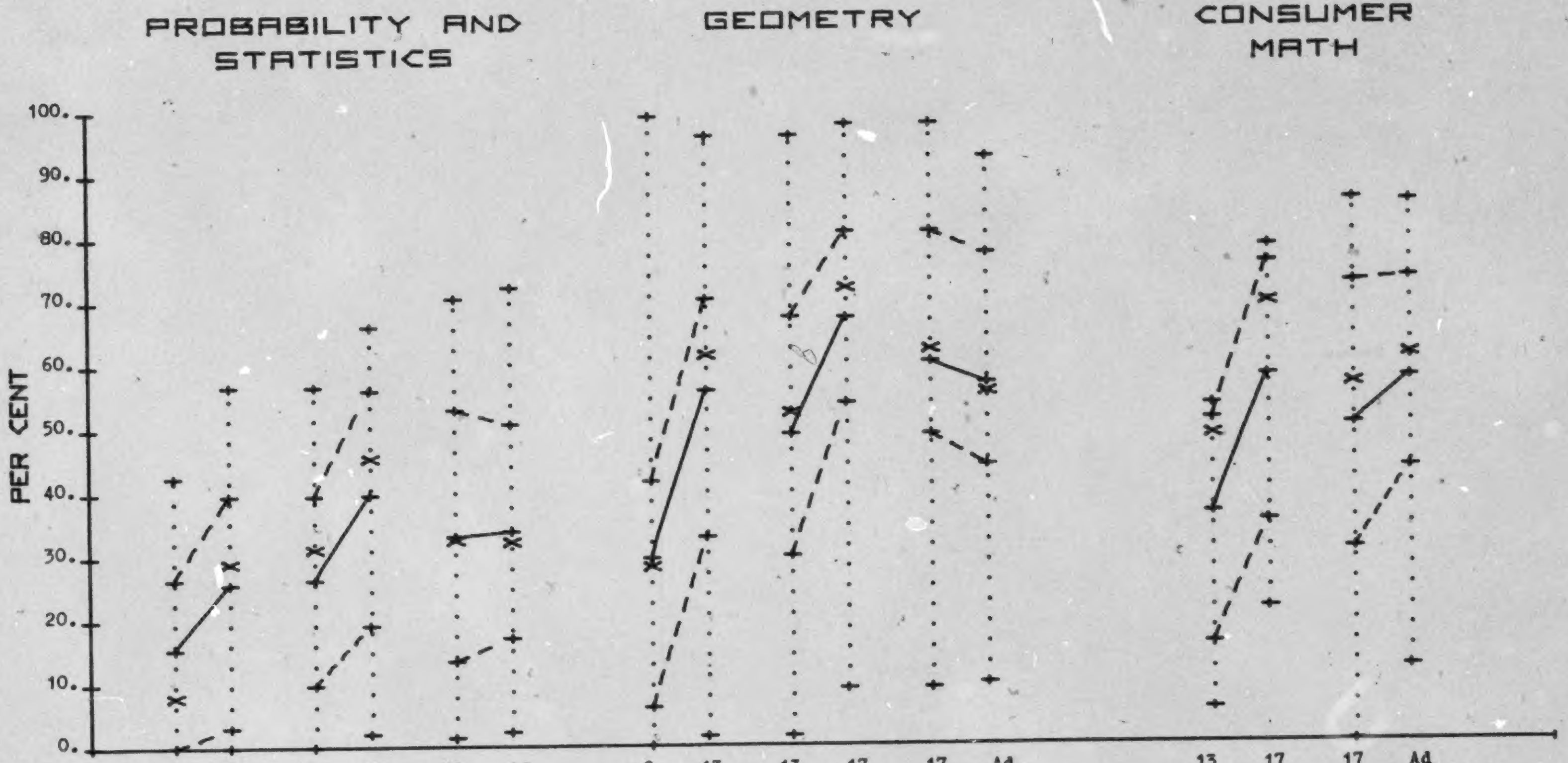
AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	13	17	17	Ad
NATIONAL																
MEAN P	14	25	25	38	32	33	28	53	46	65	58	55	36	57	49	57
MEDIAN P	6	28	27	42	29	32	28	58	47	70	60	53	47	66	54	61
GROUP																
MEAN P	12	23	22	33	30	33	27	52	45	61	56	54	36	55	46	56
MEDIAN P	4	19	19	29	26	31	26	57	46	58	54	55	44	61	49	59
NO. OBS.	5		10		12		27		29		29		12		34	

URBAN FRINGE



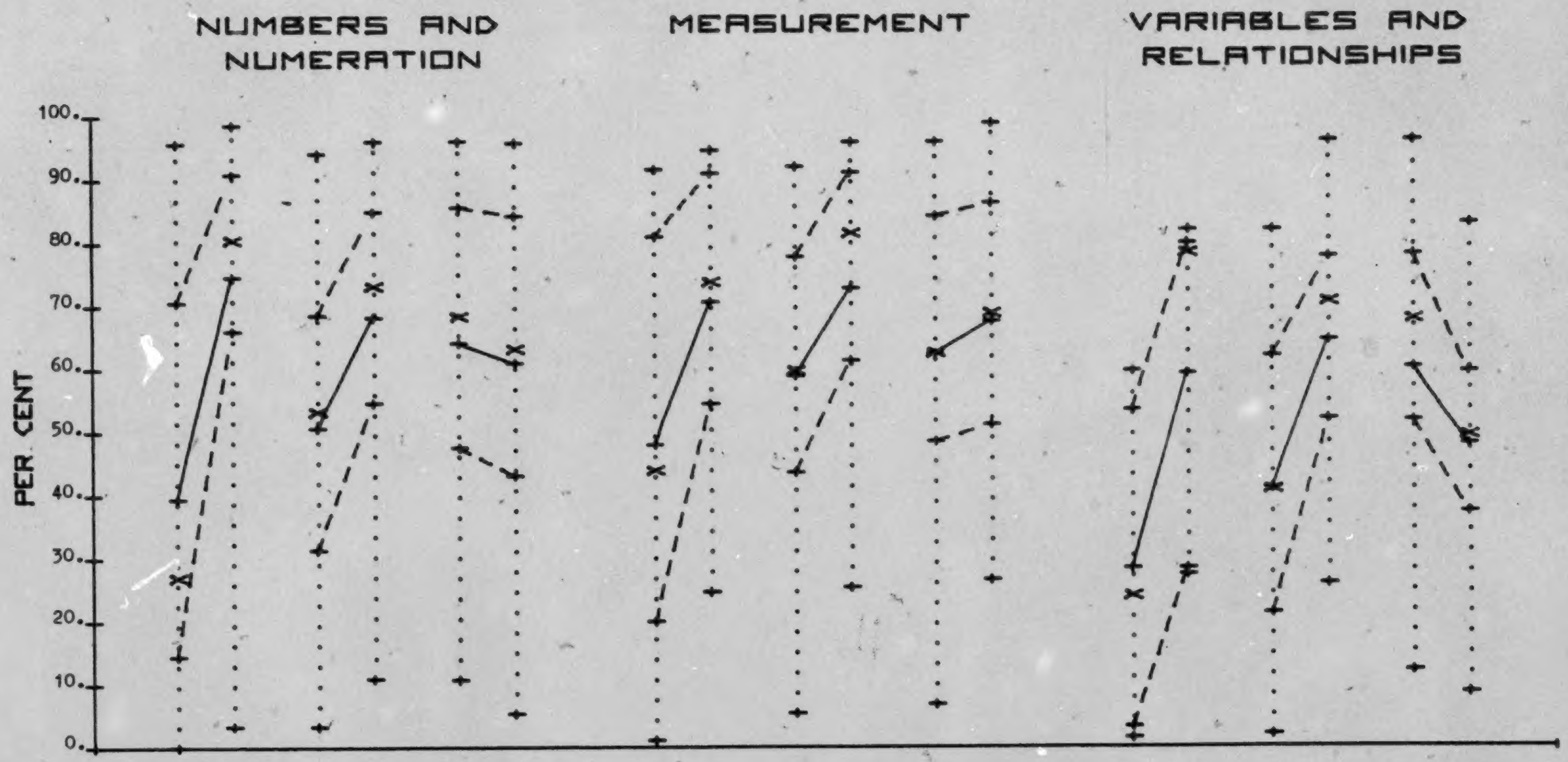
AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	9	13	13	17	17	Ad
NATIONAL																		
MEAN P	39	74	50	67	63	61	47	72	57	72	62	66	27	59	40	62	58	46
MEDIAN P	29	80	54	72	69	63	45	73	59	78	62	69	26	75	39	67	64	49
GROUP																		
MEAN P	42	77	52	69	65	61	49	74	58	73	63	66	28	60	41	64	60	46
MEDIAN P	34	81	54	75	71	63	48	76	57	79	63	68	26	73	40	67	65	50
NO. OBS.	43		68		43		22		19		32		5		24		21	

URBAN FRINGE



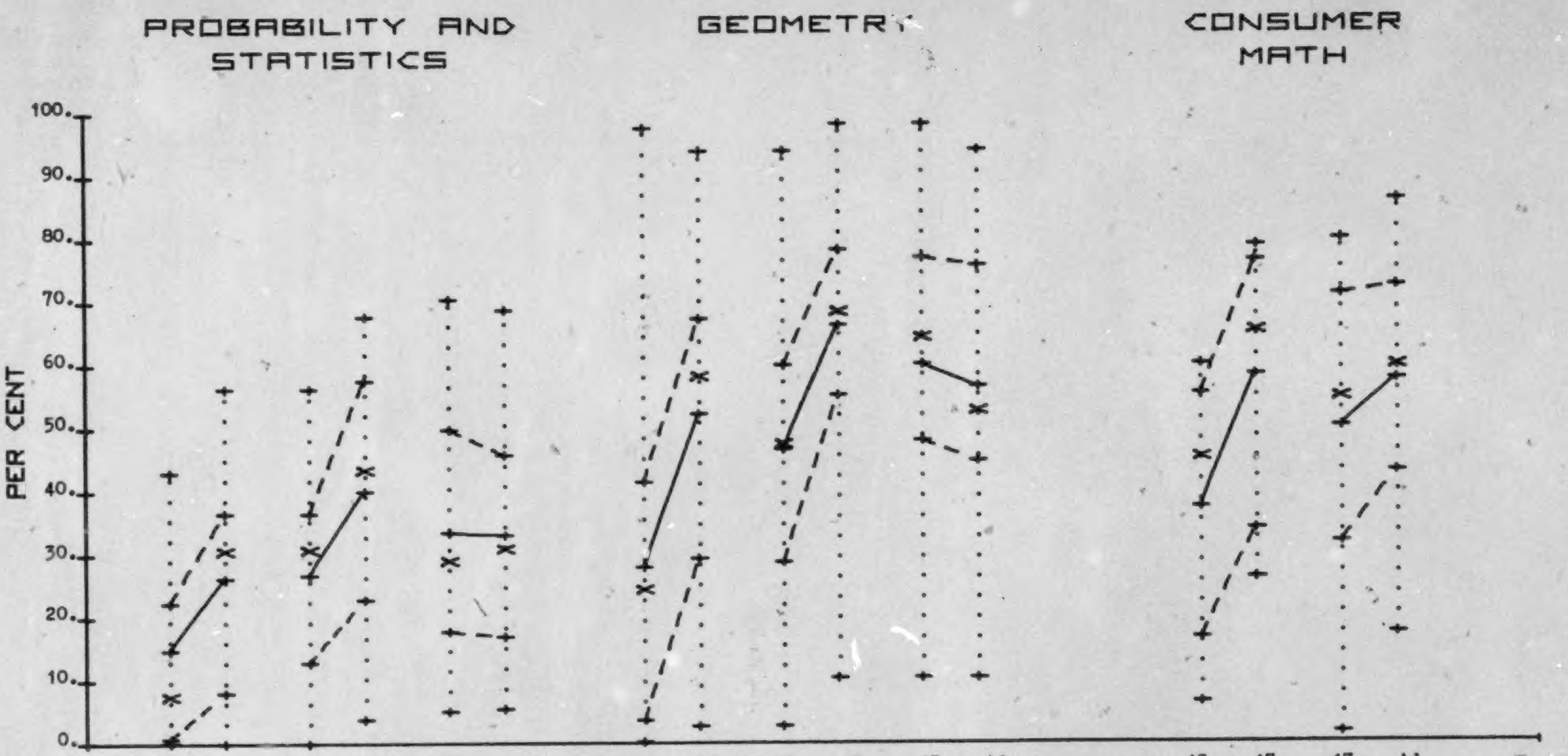
AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	13	17	17	Ad
NATIONAL																
MEAN P	14	25	25	38	32	33	28	53	46	65	58	55	36	57	49	57
MEDIAN P	6	28	27	42	29	32	28	58	47	70	60	53	47	66	54	61
GROUP																
MEAN P	15	26	26	40	33	34	30	56	49	67	60	57	36	58	50	57
MEDIAN P	8	29	31	45	33	32	28	61	52	72	62	56	49	69	56	61
NO. OBS.	5		10		12		27		29		29		12		34	

MEDIUM CITY



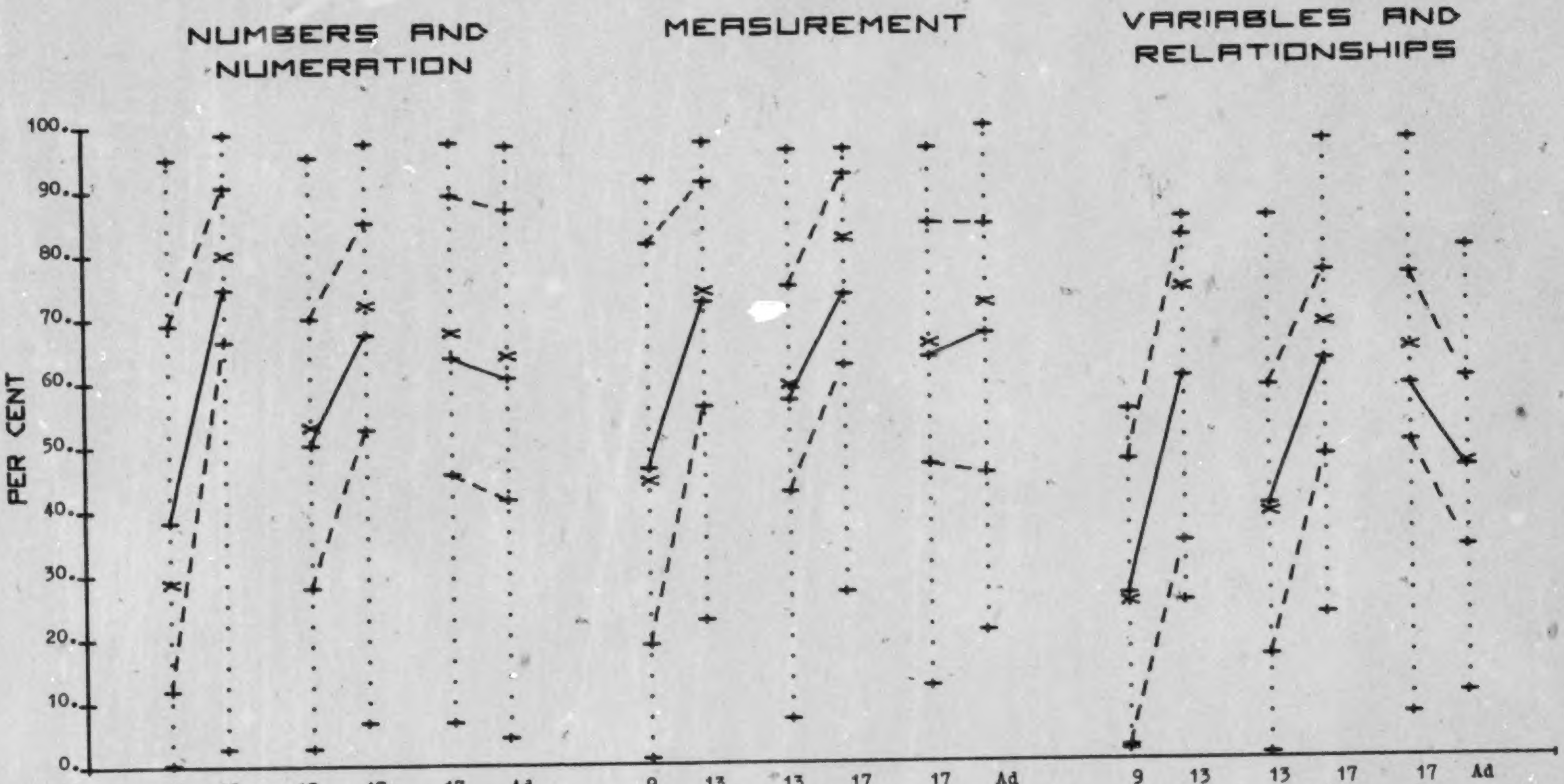
AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	9	13	13	17	17	Ad
NATIONAL																		
MEAN P	39	74	50	67	63	61	47	72	57	72	62	66	27	59	40	62	58	46
MEDIAN P	29	80	54	72	69	63	45	73	59	78	62	69	26	75	39	67	64	49
GROUP																		
MEAN P	39	75	51	68	64	61	48	71	59	73	62	68	28	59	41	65	60	48
MEDIAN P	27	81	53	73	68	63	44	74	60	82	63	69	24	78	41	71	68	49
NO. OBS.	43		68		43		22		19		32		5		24		21	

MEDIUM CITY



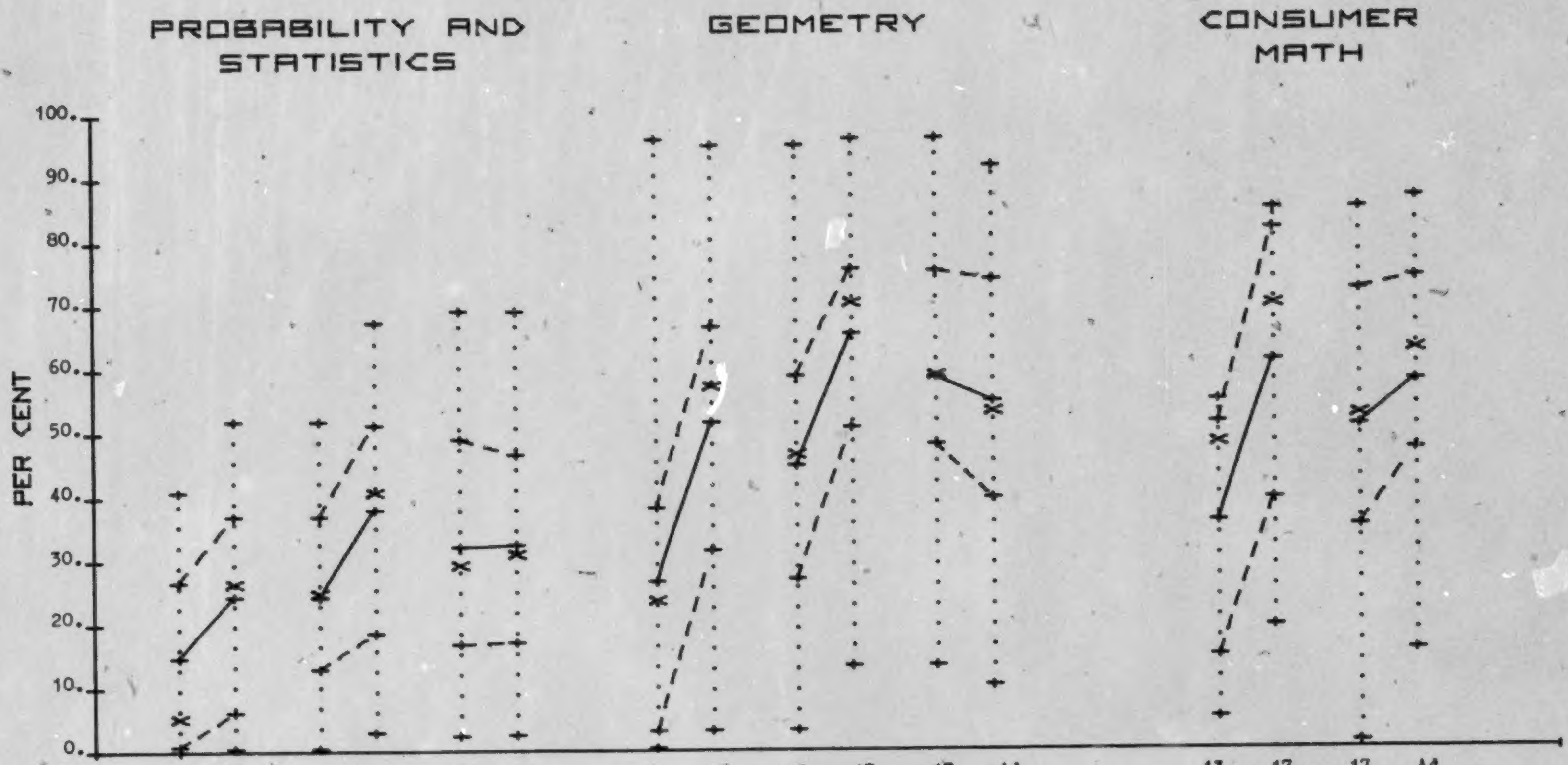
AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	13	17	17	Ad
NATIONAL																
MEAN P	14	25	25	38	32	33	28	53	46	65	58	55	36	57	49	57
MEDIAN P	6	28	27	42	29	32	28	58	47	70	60	53	47	66	54	61
GROUP																
MEAN P	15	26	27	40	34	33	28	52	47	66	60	57	38	59	50	58
MEDIAN P	8	31	31	43	29	31	24	58	48	69	64	53	45	66	55	60
NO. OBS.	5		10		12		27		29		29		12		34	

SMALL PLACES



AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	9	13	13	17	17	Ad
NATIONAL																		
MEAN P	39	74	50	67	63	61	47	72	57	72	62	66	27	59	40	62	58	46
MEDIAN P	29	80	54	72	69	63	45	73	59	78	62	69	26	75	39	67	64	49
GROUP																		
MEAN P	38	75	50	67	64	61	46	72	57	73	63	67	26	60	40	62	58	45
MEDIAN P	29	80	53	72	68	64	44	74	59	82	65	72	25	74	38	68	64	46
NO. OBS.	43		68		43		22		19		32		5		24		21	

SMALL PLACES



AGE	9	13	13	17	17	Ad	9	13	13	17	17	Ad	13	17	17	Ad
NATIONAL																
MEAN P	14	25	25	38	32	33	28	53	46	65	58	55	36	57	49	57
MEDIAN P	6	28	27	42	29	32	28	58	47	70	60	53	47	66	54	61
GROUP																
MEAN P	15	24	24	38	32	32	27	52	45	66	59	55	36	61	51	58
MEDIAN P	5	26	25	41	29	31	24	57	47	70	59	53	48	70	53	63
NO. OBS.	5		10		12		27		29		29		12		34	

APPENDIX A

SIGNIFICANCE CHARTS BY GROUP FOR EACH MAJOR CONTENT AREA AT EACH AGE — ALL EXERCISES

To determine the performance of a reporting group on the specific exercises or exercise parts included in the age-level summaries for each of the major content areas, the following list is provided. All of the exercises included in the content-area summary are listed by release number (e.g., RA01 or UA01) for each age, and the national percentage is given. A "+" sign indicates that the performance of the reporting group was significantly above the national level of performance; a "-" sign indicates that the reporting group performed significantly below the national level of performance for that exercise. The absence of either sign indicates that there was no significant difference between the performance of the reporting group and that of the nation. To be considered significant, the difference between the group and the nation had to be greater (in absolute value) than twice its standard error. This is approximately equivalent to the .05 level of statistical significance. For example, the national percentage for 9-year-olds on Exercise RA01 (which was included in the numbers-and-numeration summary) was 75.2; the percentage for 9-year-olds in the Northeast was significantly above that, the percentage for those in the Southeast significantly below that, and the percentages for 9-year-olds in the Central and Western regions of the country did not differ significantly from that for the nation.

The standard abbreviations and definitions used in this appendix are presented in Chapter 1. For the reader who wishes to determine the content of a specific exercise or the exact results for a reporting group on an exercise, the exercise may be located by its release number in the *Math Technical Report: Exercise Volume, Report 04-MA-20.*

AGE NINE NUMBERS AND NUMERATION CONCEPTS ALL EXERCISES

RELEASE #	NATIONAL	P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RA01	75.2		+	-					+	-				+		-	+	+			
UA01	86.9			-	+				+	-			+	+		-	+			+	
RA02	74.3		+	-			+	-	+	-		-	+	+		-	+				
UA03	42.0			-	+				+	-	-			+			+				
RA04	80.3			-			-	+	+	-	-			+		-	+				
UA04	1.4						+	-	+	-											
RA05	8.0						+	-	+	-						-					
RA06	93.8				+		-	+	+	-	-		+	+		-	+				
RA07	73.8		+						+	-				+	-	-	+		+		
UA07A-B	69.1		+	-			-	+	+	-	-			+	-	-	+		+		
UA08	88.4		+	-					+	-	-			+	-	-	+		+		
RA10A	30.8		+	-					+	-	-			+		-	+				
RA10B	31.3		+	-					+	-				+		-	+				
RA10C	30.6		+	-					+	-	-			+		-	+				
RA10D	36.7		+	-					+	-				+		-	+				
RA11	7.0						+	-						+	-						
UA11	9.1			-					+	-	-			+	-	-					
RA12	19.9								+	-	-	-		+		-					
UA13	18.2		+	-					+	-	-	-		+		-	+		-		
UB01	86.1		+	-	+		-	+	+	-	-	-	+	+		-	+	+	+	+	
UB02	74.4		+	-			-	+	+	-		-		+	-		+				
RB02A	81.9			-					+	-				+		-	+				
RB02B	85.8								+	-	-			+		-	+				+
RB03A	94.3			-		+	-	+	+	-						-	+			+	
RB03B	81.5			-		+	-	+	+	-	-			+		-	+		+		
RB03C	87.8								+	-				+		-	+				
RB04	73.3		+	-					+	-	-		+	+	-	-	+		+		-
UB04	85.4								+	-				+		-	+		+		
UB05	68.2								+	-	-			+		-		-			
RB06	41.9								+	-			+	+		-			+		
UB06	44.7		+	-	+	-			+	-				+		-	+				
UB07	0.2				-		+	-	+	-	-	-			-	-		-	-	-	
RB09	15.0								-	+	+										-
RB10	3.2					+							+								
UB12A	58.7			-			-	+	+	-	-	-	+	+		-					
UB12B	47.7		+	-			-	+	+	-	-	-		+		-	+				
RC01	39.9		+	-			-	+	+	-				+		-	+				
UC01	69.3		+						+	-		-		+		-	+				
UC02	53.1		+	-			-	+	+	-	-	-		+	-	-	+		+		
RC02A	79.0		+	-	+	-	-	+	+	-	-	-		+		-	+		+		
RC02B	55.0		+	-			-	+	+	-	-			+		-	+				
RC02C	25.2		+	-					+	-		-	+	+		-			+		
RC02D	15.2		+	-					+	-	-			+		-	+	-			
RC03	21.5		+	-					+	-	-			+		-	+	-	+		
UC03	75.8		+	-					+	-				+	-	-	+			+	
RC04	27.2		+	-					+	-	-			+		-	+				
UC04	30.5		+	-		-			+	-	-	-		+		-	+				
RC05	50.4		+	-					+	-	-			+		-	+				
UC05	33.6		+	-					+	-	-			+		-	+			-	
RC06	45.9		+	-	+				+	-		-		+		-	+				
UC06	35.4			-			-	+	+	-				+		-					
RC07	36.7			-			+	-	+	-	-		+	+		-	+				
UC07	69.0		+	-					+	-	-			+	-	-	+				
UC08	29.2		+	-		-	-	+	+	-	-			+		-	+			-	

AGE NINE NUMBERS AND NUMERATION CONCEPTS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RC09	4.3					+	-	+	-				+		-					
UC09	3.8		-					+	-	-			+		-			+		-
UC10	57.5	+	-					+	-	-			+	-	-	+			+	
RC11	16.0	+	-					+	-	-			+	-	-	+				
RC13	6.4		-			+	-	+	-	-			+	-	-	+				
RC14	21.4	+	-			+	-	+	-	-	-		+		-	+				-
UC14A	72.3							+	-	-	-		+	-						
UC14B	28.0	+	-	+	-	-	+	+	-	-	-		+		-					
UC14C	5.1		-					+	-	-		-	+	-						
UC15	13.7		-		+	+	-	+	-	-			+	-	-	+				
UC16	17.4		-			+	-	+	-				+		-		-			
RC21	30.6								-				+		-	+		+		
RC22	68.3	+	-	+				+	-	-			+		-	+				
UC22	7.8	+				+	-	+	-	-			+		-					
UC24	14.3	+	-			+	-	+	-		-		+							
UD01	10.9							+	-		-		+		-					
RD02	49.1					-	+	+	-						-			+		
UD02	19.7		-	+				+	-	-	-		+		-					
RD04	5.1									-			+							-
UD05	44.8		-					+	-	-	-	+	+		-	+		+		

AGE NINE MEASUREMENT CONCEPTS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	N	F	WHT	BLK	WHS	SHS	GHS	PHS	ER	LM	MR	RBC	UF	MC	SP
RE01	14.7					+	-		-				+						+	
UE01A	81.9	+	-					+	-	-	-		+		-	+		+		
UE01B	36.1							-	+							+	-			
UE01C	83.4		-					+	-	-		+	+		-	+				
UE01D	53.9		-			+	-	+	-	-			+		-	+		+		
UE01E	82.8	+	-					+	-	-		+			-	+	+			
RE02	25.1		-			+	-	+	-	-			+	-	-	+				
UE02	50.3	+	-			+	-	+	-				+		-	+				
UE03	41.8	+	-					+	-	-			+	-	-	+				
UE04	36.0		-	+		+	-	+	-		-		+	-	-	+				
UE05A-C	96.4	+			-			+	-						-			+		
UE05D	80.0		-					+	-				+		-	+				
UE05E	89.6	+	-					+	-	-			+		-	+				
UE05F	73.5	+	-					+	-	-			+	-	-	+		+		
UE05G	73.5	+	-					+	-	-	-		+	-	-	+		+		
RE06	44.5		-					+	-				+		-	+				
UE07	10.8		-					+	-				+		-	+	-	+		
UE09	39.4		-	+		+	-	+	-	-			+		-	+		+		
UE11A	14.5		-			+	-	+	-	-		-	+		-	+				
UE11B	60.2		-	+		+	-	+	-	-	-		+	-	-	+	-	+	+	
UE11C	84.2		-	+				+	-				+		-	+				
UE11D	1.5		-						-	-			+							
UE11E	81.5		-	+				+	-				+		-	+				
UE11F	47.5		-	+		+	-	+	-	-	-		+		-	+				
UE11I	17.9	-	-	+				+	-	-			+		-					
UE11K	16.1					+	-	+	-		-	-	+		-	+				-
RE12	80.0	+	-			+	-	+	-	-			+		-	+		+		
RE14	67.6	+	-					+	-				+		-	+				
RE15	43.9	+	-			+	-	+	-	-			+		-	+		+		
RE17	2.9					+	-							-						
UE17A	92.1		-	+		+	-	+	-				+							
UE17B	18.9	+	-			+	-	+	-	-	-		+		-					
UE17C	22.8		-	+		+	-	+	-	-	-		+		-	+				
UE17E	40.0	+	-			+	-	+	-	-	-	-	+		-	+				
UE17F	46.0	+	-			+	-	+	-					-					-	

AGE NINE VARIABLES AND THEIR RELATIONSHIPS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RH01	89.9					-	+	+	-	-	-		+		-	+				
UH01	3.3							-							+					
RH03	49.2		-	+				+	-	-			+	-	-	+				
UH06	25.6		-			+	-	+	-		-		+		-					
UN01	54.3		-	+				+	-				+		-	+			+	
UN03	2.4									-			+	-						

AGE NINE PROBABILITY AND STATISTICS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
UJ03L	0.0																			
UJ03H	41.3								-						-					
UJ03O	23.2							+	-				+		-		-			
UJ03P	0.6	+	-					+	-	-	-		+	-				-		
UJ03S	5.7		-			+	-	+	-	-			+		-					

AGE NINE GEOMETRIC FACTS AND RELATIONSHIPS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UP	MC	SP
RK01	48.4		-		+			+	-			+	+		-	+				
RK02	18.4		-					+	-					-				-		
UK02	0.2					+		+												
RK03	31.5														-					
UK03	3.9		-					+	-	-			+							
UK04	66.6		-	+				+	-	-	-		+		-	+				
RK05	74.0	+	-		+			+	-	-			+	-	-	+	+			
UK05	31.8		-	+				+	-	-	-	-	+	-	-	+				
RK06	28.2		-		+	+	-	+	-				+		-	+				
UK06A	48.8		-					+	-	-			+	-		+				
UK06B	20.9		-			+	-	+	-		-		+	-	-	+				
UK06C	28.7	+	-			+	-	+	-		-		+		-	+				
UK07	6.2							+	-						-					
UK08	25.0		-	+		+	-	+	-	-	-		+			+		+	-	
RK09	71.6	+	-			-	+	+	-	-			+	-	-	+		+		
RK10	17.3		-													+	-			
RK11	23.8		-							-			+		-					
UK11	3.2		-					+	-	-	-		+	-					-	
RK12	4.6					+	-		-				+			+				-
UK12C1	40.8										-		+			+				
UK12C5	39.2												+							
UK12C6	32.0															+				
UK12C7	42.6					+	-						+							
UK12C9	37.3		-										+	-		+				
UK12I	96.4		-					+	-		-		+					+		
UK12J	3.8							+	-	-	-	-	+		-	+	-			
UK12K	87.5			+				+	-				+							
UK12L	2.2		-		-	+	-		-	-		-	+		-	+				-
UK12M	27.7		-	+		+	-	+	-	-	-		+		-	+				-
UK12N	1.5																-			-
UK12O	2.8		-			+	-		-	-		-	+			+			-	
RK13	6.9		-			+	-	+	-				+	-	-					
UK15	39.9	+	-			+	-	+	-	-	-		+	-	-	+		+		
RK16	36.2					+	-	+	-				+							
UK16	23.1		-	+				+	-	-		-	+		-	+				
RK17	38.2		-					+	-	-			+			+	-			
UK18	3.9		-										+					-		
RK19	10.4	+	-					+	-	-	-		+		-	+				
RK20	48.3					+	-	+	-	-			+		-			+		

AGE NINE CONSUMER MATHEMATICS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UP	MC	SP
UP11	13.0	+	-			+	-	+	-	-	-	-	+	-	-	+				
RQ01A	88.6		-	+				+	-				+		-	+		+		
RQ01B	60.6	+	-	+		+	-	+	-	-			+		-	+		+		
RQ01C	84.3	+	-	+				+	-				+		-	+				

AGE THIRTEEN NUMBERS AND NUMERATION CONCEPTS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	HBC	UP	MC	SP
UA02A	8.9							+	-		-		+		-					
UA02B	18.0	+			-			+	-	-	-		+							
RA03	41.6							+	-	-		-	+		-	+				
UA03	75.3	+				-	+	+	-	-			+		-	+			+	
RA05	58.4	+			-	-	+	+	-	-	-		+		-					
UA05	59.4	+	-					+	-	-	-		+	-	-	+		+		
UA06	21.7				-			+	-	-			+		-					
RA07	91.4	+	-	+				+	-				+		-	+				
RA08	51.2		-					+	-	-	-		+		-	+				
UA08	96.1																			
RA09	20.9		-			+	-	+	-	-	-		+		-	+				
UA09	49.9	+			-	-	+	+	-	-			+		-					
UA10	41.1	+	-		-			+	-	-	-		+		-	+				
RA11	68.9	+				-	+	+	-	-	-		+		-	+				
UA11	65.1	+	-	+	-			+	-	-	-		+		-	+	-			
RA13	20.4							+	-	-	-	-	+		-	+				
UA13	77.2	+		+	-			+	-	-			+		-	+				
RA14	11.9	+	-					+	-	-	-	-	+		-	+				
RA15	40.9	+			-			+	-		-		+		-	+			-	
RB01	56.6	+	-					+	-	-	-		+		-	+				
UB01	97.7		-					+	-	-			+		-	+				+
RB02A	95.9			+				+	-				+			+				
RB02B	96.8							+	-				+			+				
UB03	67.2				-			+	-				+		-					+
RB03A	98.1		-					+	-				+		-					+
RB03B	94.8							+	-				+		-	+		+		
RB03C	94.2		-					+	-	-			+		-	+				
UB04	95.2							+	-						-					
RB05	71.6	+				-	+	+	-	-	-		+		-	+				
RB06	82.2	+	-	+		-	+	+	-	-	-	+	+		-	+				
UB06	73.9	+				+	-	+	-				+	-	-		+			
UB07	3.3		-		-	+	-	+	-	-	-		+		-					
RB07A	84.3		-	+		+	-	+	-	-			+		-	+				
RB07B	51.5	+	-	+		+	-	+	-	-			+		-	+				
RB08	18.9	+			-	+	-	+	-	-	-	-	+		-	+			+	-
UB08	15.6		-			+	-	+	-	-	-		+		-	+				
RB09	17.8								+											
UB09	55.9		-	+		+	-	+	-	-			+		-					+
RB10	26.2		-	+		+	-	+	-	-	-		+		-			+		
UB10	24.4				-	-	+	+	-	-	-		+		-					
UB11	58.1				-	-	+	+	-	-	-		+		-	+				
RC01	84.3	+	-	+	-	-	+	+	-							+	+			
UC01	91.2							+	-	-			+		-					
UC02	82.8	+	-					+	-	-	-		+		-	+				
RC02A	94.3					-	+	+	-											
RC02B	88.9	+				-	+	+	-		-		+		-	+				
RC02C	82.6		-	+	-	-	+	+	-		-		+		-	+				
RC02D	88.5	+						+	-		-	+	+		-	+				
RC03	71.7	+	-					+	-	-			+		-	+				+
RC04	80.0		-					+	-	-	-	+	+		-	+				
UC04	75.2		-	+				+	-	-			+		-					
UC05	79.9	+			-	-	+	+	-	-			+		-	+				
RC08	38.5	+	-			+	-	+	-	-	-		+		-	+				
UC08	83.8					-	+	+	-				+		-					+

AGE THIRTEEN NUMBERS AND NUMERATION CONCEPTS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RC09	67.1	+	−			−	+	+	−	−	−		+		−	+				
UC09	68.9			+		−	+	+	−				+		−	+				
RC10	30.8	+		+	−			+	−	−	−		+		−	+				
RC11	60.0	+	−		−			+	−	−	−		+		−	+				
UC11	66.4		−	+	−			+	−	−	−		+		−	+				
UC12	39.4							+	−	−			+		−	+	−			
RC13	44.1	+	−		−	+	−	+	−	−	−		+		−	+				
UC14A	89.4												+							
UC14B	71.0					−	+	+	−	−			+				−	+		
UC14C	66.6		−					+	−	−	−		+		−	+				
RC15	41.9	+	−			−	+	+	−	−	−		+	−	−	+		+		
UC15	68.9		−					+	−	−	−		+		−	+				
RC16	62.3					−	+	+		−			+		−					
UC16	56.6			+		+	−	+	−	−	−		+		−					
RC17	60.5	+	−			−	+	+	−	−	−		+		−	+				
RC18	17.4	+	−		−	+	−	+	−	−			+	−	−	+				
UC18	47.7	+			−	−	+	+	−	−			+		−	+				
UC19	24.6	+	−			+	−	+	−	−	−		+	−	−	+	−			
RC20	9.6		−					+	−	−		−	+		−	+				−
UC20	28.6	+			−	+	−	+	−	−	−		+	−	−	+				
UC23	22.0	+						+	−		−	−	+		−	+				
UC24	62.5	+	−			+	−	+	−		−		+		−	+				
RC24A	66.3				−			+	−				+		−	+				
RC24B	39.0									−	−		+					+		
UC25	10.2					+	−				−		+		−					
RC25A	47.1							+	−		−		+		−	+	−		+	
RC25B	39.4		−					+	−	−	−		+		−	+				
RD01	58.3		−	+	−			+	−	−	−	−	+		−	+				
RD03	29.2											−	+			+				−
UD03	39.0	+			−			+	−	−	−		+		−					
RD04	42.8	+	−			−	+	+	−	−	−		+		−	+				
UD04	59.2	+	−					+	−	−	−		+		−	+	+			
UD05	88.2	+	−					+	−	−	−		+		−	+		+		

AGE THIRTEEN MEASUREMENT CONCEPTS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RE01	68.7	+	-			+	-	+	-		-		+		-	+				
UE01A	94.1					+	-	+	-				+		-				-	+
UE01B	72.7	+	-			+	-	+	-	-			+		-	+				
UE01C	91.9		-					+	-				+		-	+				
UE01D	86.7	+	-					+	-	-	-		+		-	+		+		-
UE01E	91.6																			
RE03	62.6	+	-					+	-				+			+				
RE04	76.1	+	-					+	-	-	-	+	+		-	+				
UE06	37.1	+	-					+	-	-	-		+		-	+			+	
RE07	45.6		-			+	-	+	-	-	-		+		-	+			+	
UE07	63.8	+			-			+	-		-		+		-	+				
RE08	73.9	+	-			+	-	+	-	-			+		-	+				
RE10	6.7	+	-					+	-		-		+		-					
UE11A	53.9		-			+	-	+	-	-	-		+		-	+				
UE11B	83.0	+	-		+			+	-	-	-		+		-	+				
UE11C	92.6		-					+	-	-			+			+				
UE11D	24.6		-	+		+	-	+	-	-	-		+		-	+				
UE11E	90.9	+	-					+	-				+				-			
UE11F	72.6					+	-	+	-	-			+		-	+				
UE11I	42.7					+	-	+	-	-	-		+			+				
UE11K	39.4		-			+	-	+	-	-	-		+		-					
RE12	91.0								-							+				
RE13	16.7																			
UE13	58.6	+	-		-			+	-	-	-	+	+		-	+				
UE14	43.0	+	-		-	+	-	+	-	-			+		-	+				
RE15	84.0	+			-	+	-	+	-				+		-	+	-			
UE15	23.4	+	-			+	-	+	-	-	-		+		-	+			+	
RE16	41.6		-	+		+	-	+	-	-	-		+		-					
UE16	44.5	+						+	-				+		-					
UE17A	95.8					+	-	+	-											
UE17B	55.5	+	-	+		+	-	+	-	-	-		+		-	+	-			
UE17C	51.6		-	+		+	-	+	-	-	-		+		-		-			
UE17E	71.8		-	+		+	-	+	-	-	-	+	+		-	+				
UE17F	56.2							+	-											
UE18	47.0				-	+	-	+	-	-			+		-	+			+	

AGE THIRTEEN VARIABLES AND THEIR RELATIONSHIPS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RP01	49.6	+			-	-	+	+	-	-	-		+		-	+				+
UP01	59.6		-	+		-	+	+	-	-	-		+		-	+				
RP02	16.7							+	-				+		-					
UP02	38.8	+			-			+	-	-	-		+		-	+				
RP03	37.3	+	-					+	-	-	-		+		-	+				
RP06	37.5	+				+	-	+	-	-	-		+						+	
RG01	12.3	+						+	-	-	-	-	+		-	+				
UG01	13.6	+			-	-	+	+	-	-			+		-					
RG02	20.6	+			-			+	-	-		-	+		-	+	-			
UG02	18.6		-	+		-	+	+	-		-	-	+		-	+	-			
RG04	45.0		-			-	+	+	-	-	-		+		-	+				
RG05	60.7		-	+				+	-	-	-		+		-			+		
UH01	29.3	+				-	+	+	-	-		-	+	-	-					+
RH02	38.9	+			-			+	-	-	-	+	+		-	+				
UH02	63.8	+	-	+	-			+	-	-	-		+		-	+				
RH03	84.6		-	+				+	-	-			+		-	+				
RH04	1.0	+		-				+	-	-	-		+	-			-			
UH04	61.8		-					+	-	-	-		+		-	+	-	+		
RH05	50.1							+	-	-	-		+		-	+				
UH06	74.8				-	-	+	+	-	-	-		+		-	+				
RH07	2.2	+			-			+	-	-	-		+		-					
RH08	13.3		-					+	-				+		-	+				
RH09	39.0	+	-	+		+	-	+	-	-	-		+		-	+		+		
UN01	81.4		-					+	-	-	-		+		-	+				
RN02	71.3							+	-	-	-		+		-	+	-		+	
UN02	75.0		-		+			+	-	-	-	+	+		-	+		+		
RN03	35.9	+			-	-	+	+	-	-		-	+		-	+				
UN03	24.7				-	+	-	+	-	-	-		+		-					

AGE THIRTEEN PROBABILITY AND STATISTICS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LN	NN	MBC	UP	HC	SP
RJ01	15.2					+	-	+	-		-	-	+	-	-	+		-		
RJ02	30.0		-			-	+	+	-		-		+		-	+	-		+	
RJ03	11.2					+	-	+	-	-	-		+		-					
UJ03L	0.2																			
UJ03M	55.3		-					+	-			-	+			+				
UJ03O	35.4		-			+	-	+	-	-	-		+		-					
UJ03P	5.9				-	+	-	+	-	-	-	-	+		-	+		-		
UJ03S	27.5		-			+	-	+	-	-	-		+			+	-			
UJ05	27.3	+			-	+	-	+	-	-	-		+		-	+	-			-
RJ06	38.4	+	-					+	-	-	-		+	-	-	+				
UJ07	12.5							+	-				+							

AGE THIRTEEN GEOMETRIC FACTS AND RELATIONSHIPS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LN	NN	MBC	UP	HC	SP
UK01	32.9	+	-	+	-	+	-	+	-	-	-		+			+				-
UK02	19.3		-					+	-	-	-		+		-			+		
UK03	54.8	+	-		-			+	-	-	-		+		-	+				
RK04	43.0	+	-		-			+	-	-	-		+	-	-	+				
RK06	68.0		-	+		+	-	+	-	-			+		-	+				
UK06A	81.7		-					+	-	-	-		+		-	+				-
UK06B	65.6		-	+				+	-	-	-		+		-	+				
UK06C	69.4	+	-	+				+	-	-	-		+		-	+				
RK07	28.6		-					+	-	-	-		+		-	+				
UK07	20.7		-			+	-	+	-		-		+		-	+	-			
RK08	15.2	+	-	+	-			+	-	-		-	+		-	+				-
UK08	46.8		-		+	+	-	+	-	-	-		+	-	-					
UK09	58.2	+	-			-	+	+	-	-	-		+	-	-	+		+		
UK10	51.3		-			+	-	+	-		-		+		-			+		+
UK11	27.5		-			+	-	+	-	-	-	-	+			+				
RK12	36.0	+			-	+	-	+	-		-		+		-	+				
UK12C1	58.3							+	-	-			+		-	+				
UK12C5	59.8			+	-			+	-	-	-		+		-	+				
UK12C6	47.5	+	-					+	-	-	-		+		-	+				
UK12C7	66.5					+	-	+	-	-			+		-	+				
UK12C9	56.8		-					+	-	-	-	+	+	-	-	+				
UK12I	95.2					-	+	+	-				+							
UK12J	22.9	+	-	+	-			+	-	-	-		+	-	-	+				
UK12K	88.7			+				+	-					-		+				
UK12L	21.4		-	+		+	-	+	-	-	-		+		-	+				
UK12M	54.4	+	-	+				+	-	-	-		+		-	+				
UK12N	2.5							+	-	-			+		-					
UK12O	23.7	+	-		-			+	-	-	-		+	-	-	+				
UK15	74.4		-	+		+	-	+	-	-	-	+	+		-	+				
RK16	60.4		-			+	-	+	-	-	-		+		-	+				
UK16	59.0		-		+			+	-	-			+		-			+		
RK19	57.5	+	-	+				+	-	-	-	+	+		-	+		+		
RK20	82.9	+	-	+	-	+	-	+	-		-		+		-	+				
UK21A	32.8		-	+		+	-	+	-	-	-		+		-	+				
UK21B	36.3		-	+		+	-	+	-	-	-		+		-	+				
UK21C	31.4		-	+		+	-	+	-	-	-		+		-	+				
UK22	10.3		-	+				+	-	-	-		+		-			-		

AGE THIRTEEN CONSUMER MATHEMATICS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RP01	48.7	+						+	-	-			+	-	-	+				
UP01A	49.5	+	-			-	+	+	-	-	-		+		-	+			+	
UP01B	53.8	+				-	+	+	-	-	-		+		-	+				
UP01C	7.0	+	-					+	-		-		+		-	+				
UP01D	49.9	+	-					+	-	-	-		+		-	+				
UP01E	48.8	+				-	+	+	-	-	-		+	-	-	+			+	
RP07	24.5		-	+				+	-											
UP09	7.6			+				+	-		-		+		-	+				-
UP11	52.1		-					+	-	-	-		+			+				
RQ03	78.6		-			-	+	+	-			-	+		-	+			+	
UQ04	51.1	+	-	+		+	-	+	-	-	-		+		-	+				
UQ05	32.9		-					+	-	-			+		-	+				
RQ05A	44.8		-	+	-	+	-	+	-	-	-		+		-	+				
RQ05B	6.9	+						+	-	-	-		+		-	+				

AGE SEVENTEEN NUMBERS AND NUMERATION CONCEPTS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
UA02A	7.8					+	-	+	-	-			+		-					
UA02B	14.1			+		+	-	+	-	-	-	-	+		-				+	
RA03	49.8							+	-		-		+		-					
UA03	91.5							+	-	-	-		+	-	-	+	-			+
RA05	69.0							+	-	-	-		+		-	+		+		
UA05	72.0	+	-					+	-	-	-		+		-	+				
UA06	25.6	+	-		-			+	-	-	-		+		-	+				
RA08	72.2	+	-					+	-	-	-		+		-	+			+	
RA09	38.5	+				+	-	+	-	-	-		+	-	-	+	-			+
UA10	57.5		-	+				+	-	-	-		+		-	+		+		
RA11	81.2	+			-			+	-	-	-		+		-					+
UA12	69.3		-			+	-	+	-	-	-		+	-	-	+				+
RA13	35.9					+	-	+	-	-	-		+	-	-	+			+	
RA14	40.8					+	-	+	-	-	-		+		-	+				
RA15	64.7		-			+	-	+	-	-	-		+		-	+				+
RB01	78.8	+	-	+				+	-	-	-		+		-	+				
UB03	80.5		-					+	-	-	-		+		-	+				
RB05	79.5							+	-	-	-		+		-					
RB06	88.2	+			-			+	-	-	-		+		-					
UB07	13.9	+	-			+	-	+	-	-	-		+		-	+				
RB07A	92.8		-	+		+	-	+	-		-		+		-				+	+
RB07B	75.3		-			+	-	+	-	-	-		+		-	+				+
RB08	38.6	+	-			+	-	+	-	-	-		+		-	+				+
UB08	48.7	+	-			+	-	+	-	-	-		+		-	+	-			
RB09	40.9	+	-			+	-	+	-	-	-	-	+		-	+	-			
UB09	83.2		-	+		+	-	+	-	-	-		+	-	-	+				
RB10	49.2		-			+	-	+	-	-	-		+		-					
UB10	50.2	+	-					+	-	-	-	-	+		-	+			+	
UB11	71.6							+	-	-	-		+	-		+				
RC01	92.5					-	+	+	-		-		+		-	+				
UC02	92.6			+				+	-	-			+		-			+		
RC02A	96.8	-		+				+	-				+		-					
RC02B	91.6					-	+	+	-		-		+							
RC02C	87.5							+	-	-	-		+		-					
RC02D	93.2							+	-		-		+		-	+				+
RC04	88.8					-	+	+	-	-	-		+		-			+		+
UC04	87.3							+	-	-			+	-	-	+				
RC08	64.6	+	-	+		+	-	+	-	-	-		+	-	-	+		+		
UC08	89.8	+						+	-	-	-		+		-		+	+		
RC09	79.7					+	-	+	-	-	-		+		-				+	+
UC09	81.0					-	+	+	-	-	-		+		-	+				
RC10	52.6	+		-				+	-	-	-	-	+		-	+				
UC11	85.4	+	-					+	-	-	-		+		-			+		
RC12	89.0	+	-			+	-	+	-	-			+	-	-	+				
UC12	63.5					+	-	+	-	-	-	-	+		-					+
RC13	68.1	+	-			+		+	-	-	-		+		-	+				
UC14A	93.5		-	+				+	-			+			-					
UC14B	80.5		-			-	+	+	-	-	-		+		-	+		+		
UC14C	77.5	+	-					+	-	-	-		+		-	+				
RC15	66.2							+	-	-	-		+		-					+
UC15	83.7		-			+	-	+	-	-	-		+	-	-	+		+	+	
RC16	73.5							+	-	-	-		+		-					
UC16	77.7							+	-	-	-		+		-	+				
RC17	78.0		-					+	-	-			+		-	+			+	

AGE SEVENTEEN NUMBERS AND NUMERATION CONCEPTS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
UC17	10.3		-			+	-	+	-	-			+	-	-					
RC18	44.5		-			+	-	+	-	-	-	-	+		-	+				
UC18	72.6	+						+	-	-	-		+		-	+			+	
RC19	70.0	+				+	-	+	-	-	-		+	-	-	+				+
UC19	58.0	+	-	+	-	+	-	+	-	-	-		+		-	+				
RC20	40.8		-					+	-	-	-		+		-	+				
UC20	60.9	+	-			+	-	+	-	-	-		+		-	+	-			
UC21	27.3					+	-	+	-	-	-		+		-		-			
RC23	52.5					+	-	+	-	-	-		+		-					+
UC24	84.2		-	+		+	-	+	[illegible]	-	-		+	-	-	+			+	
RC24A	78.1							+	-	-	-		+		-	+	-			
RC24B	68.4							+	-	-	-	-	+		-	+				
UC25	26.2		-			+	-	+	-	-	-		+		-					
RC25A	64.1	+	-					+	-	-	-	-	+	-	-	+			+	
RC25B	64.5		-					+	-	-	-	-	+		-	+	-			
RC26	46.7	+	-			+	-	+	-	-	-		+		-	+	+			
RD01	76.0							+	-	-	-		+	-	-	+				
RD03	43.7			+	-			+	-	-	-		+	-	-	+				
UD03	56.6							+	-	-	-		+		-	+				
RD04	55.1	+						+	-	-	-	-	+		-	+				
UD04	71.0		-					+	-	-	-		+		-	+		+	+	

AGE SEVENTEEN MEASUREMENT CONCEPTS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RE01	89.1	+	-			+	-	+	-	-			+	-	-	+		+		
UE01A	96.8			+				+	-	-			+			+		+		
UE01B	84.7	+			-			+	-	-	-	+	+		-	+				
UE01C	94.4							+	-				+	+				+		
UE01D	94.4	+						+	-	-		+	+		-	+				
UE01E	93.2					-	+										+			
RE03	82.4	+	-			+	-	+	-	-	-		+	-	-	+		+		
RE04	91.8					+	-	+	-		-		+		-	+			+	
RE05	35.0					+	-	+	-	-	-		+		-	+				
UE06	53.8					+	-	+	-	-	-	-	+	-	-	+				
RE07	66.4	+				+	-	+	-	-	-		+		-	+	-			+
RE08	85.6	+	-					+	-	-	-		+		-	+				
UE08	57.2	+				+	-	+	-	-	-		+		-	+				
RE09	41.0		-			+	-	+	-	-	-		+		-	+				-
RE10	28.2	+	-					+	-	-	-	-	+		-	+				
UE10	60.4			+		+	-	+	-		-		+		-					+
RE11	80.7	+						+	-	-	-		+		-	+				
UE12A	68.5		-	+		+	-	+	-	-	-		+		-	+		+	-	
UE12B	54.3		-	+		+	-	+	-	-	-		+		-	+				
UE12C	58.4		-	+		+	-	+	-		-	-	+		-	+				
UE12E	28.6		-		+	+	-	+	-	-	-	-	+		-	+				
UE12F	16.3		-			+	-	+	-		-		+		-	+				
UE12H	9.2					+	-		-		-		+		-	+				+
RE13	30.1		-			+	-	+	-		-		+		-					+
UE13	77.9	+						+	-		-		+		-		-			+
UE14	64.2	+			-	+	-	+	-	-	-		+		-	+				
UE15	48.8		-			+	-	+	-	-	-		+		-					+
RE16	59.3		-			+	-	+	-	-	-		+		-	+				
UE16	60.4					+	-	+	-	-	-		+		-	+				
UE18	65.4	+	-			+	-	+	-	-	-		+		-	+				
UE19	64.6		-			+	-	+	-	-	-		+		-	+				
UE20	39.4	+	-			+	-	+	-	-	-		+		-	+				

AGE SEVENTEEN VARIABLES AND THEIR RELATIONSHIPS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	N	F	WHT	BLK	WHS	SHS	GHS	PHS	ER	LM	HM	MBC	UP	MC	SP
RF01	73.9		-					+	-	-	-		+		-	+				
UF01	76.3		-	+				+	-	-	-		+		-	+				
RF02	28.1							+	-	-	-	-	+	-	-	+				
UF02	60.3	+	-					+	-	-	-		+		-	+				
RF03	75.4		-					+	-	-	-		+		-	+				
UF03	13.2		-			+	-	+	-	-	-	-	+		-	+				
RF04	50.3		-			+	-	+	-	-	-		+		-					+
UF04	47.9	+				+	-	+	-	-	-		+	-	-	+				
RF05	19.2	+		-		+	-	+	-	-	-		+		-	+				
UF05	19.9	+	-	-				+	-	-	-	-	+		-	+	-			
RF06	62.2		-					+	-	-	-		+		-	+	-			
UF06A	17.4	+				+	-	+	-	-	-	-	+	-	-	+				
UF06B	8.1	+				+	-	+	-	-	-		+	-	-	+			+	
RG01	42.8					+	-	+	-	-	-		+		-	+				
UG01	51.3	+						+	-	-	-	-	+		-	+				
RG02	51.3	+	-					+	-	-	-		+	-	-	+				
UG02	43.4		-					+	-	-	-	-	+		-	+	-			
RG03	29.1	+						+	-	-	-	-	+		-	+				
UG03	30.4	+	-	-		+	-	+	-	-	-		+	-	-	+				
RG04	75.2	+	-					+	-	-	-		+		-	+		+		
UG04	20.0	+	-	-				+	-	-	-	-	+			+				
RG05	69.2					+	-	+	-		-		+		-	+				
RH02	75.4							+	-	-	-		+		-	+	-			
UH02	76.8	+	-	+		+	-	+	-	-	-		+		-	+				
RH03	93.9			+				+	-	-	-		+		-			+	+	+
UH03	35.5	+						+	-	-	-		+	-	-	+				
RH04	23.5		-	+	-	+	-	+	-	-	-	-	+	-	-	+				
UH04	81.2					+	-	+	-	-	-		+		-	+	-	+		
RH05	70.0	+			-			+	-	-	-		+		-					
UH05	17.2	+	-					+	-	-	-	-	+		-	+				
RH06	26.0	+	-					+	-	-	-	-	+	-	-	+	-			
RH07	24.0				-			+	-	-	-	-	+	-	-	+				
UH07	19.1	+						+	-	-	-	-	+	-	-	+				
RH08	46.4	+	-			+	-	+	-	-	-	-	+			+				
UH08	13.4																			-
RH09	64.0	+	-			+	-	+	-	-	-		+		-	+			+	
UH09	19.9	+	-			+	-	+	-	-	-	-	+	-	-	+				
RI01	40.0	+				+	-	+	-	-	-		+	-	-	+				
UI01A	15.7	+			-			+	-	-	-	-	+	-	-	+				
UI01B	12.4	+			-			+	-	-	-	-	+	-		+				
RI02	21.1	+	-					+	-	-	-	-	+	-	-	+				
UI02	4.9		-					+	-	-	-	-	+		-	+				-
UI03	3.2	+		-				+	-		-	-	+	-	-					+
UL01A	10.8	+	-					+	-	-	-	-	+	-						
UL01B	11.4	+	-	-				+	-	-	-	-	+	-						
UL01C	11.7	+	-					+	-	-	-	-	+	-						
RN01	50.5		-					+	-	-	-		+		-	+				
UN01	83.9	+	-					+	-	-	-		+		-	+				
UN02	78.8							+	-	-	-		+		-	+				
RN03	64.8		-					+	-	-	-	-	+		-	+				

AGE SEVENTEEN PROBABILITY AND STATISTICS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RJ01	27.4	+				+	-	+	-		-		+		-					+
UJ01	4.5	+		-		+	-	+	-	-	-		+	-	-	+	-			
RJ02	47.3					-	+	+	-	-			+	-	-	+				
UJ02	18.7		-			+	-	+	-	-	-	-	+	-	-	+				
UJ03L	2.7	+	-			+	-	+	-	-	-			-	-					
UJ03M	63.0		-	+		+	-	+	-	-	-		+		-					
UJ03O	50.2		-	+		+	-	+	-	-	-		+		-				+	
UJ03P	8.4		-			+	-	+	-	-	-		+		-	+				
UJ03S	36.1		-			+	-	+	-	-	-		+		-	+	-			
RJ04	31.1					+	-	+	-	-	-		+		-	+			+	
UJ04	4.5	+			-			+	-				+	-	-					
RJ05	30.8							+	-	-	-	-	+	-		+				
UJ05	89.0		-					+	-	-	-		+	-	-	+				
RJ06	66.0	+	-					+	-	-	-		+		-	+				
UJ06	2.7					+	-				-		+	-		+				
UJ07	14.6							+	-	-	-		+		-					
UJ08	69.0							+	-	-			+	-						
UJ09	19.0		-					+	-	-	-		+		-	+				

AGE SEVENTEEN GEOMETRIC FACTS AND RELATIONSHIPS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
UK01	56.4		-			+	-	+	-	-	-		+		-				+	
RK04	72.9	+	-			+	-	+	-	-	-		+		-	+				
UK06A	92.4	+						+	-	-	-	+	+		-	+		+		
UK06B	82.2					+	-	+	-	-	-		+		-	+				
UK06C	83.8	+	-					+	-	-	-		+		-	+				
RK07	49.5		-	+		+	-	+	-	-			+		-	+			+	
UK07	43.2		-			+	-	+	-	-	-		+		-	+				
RK08	51.5	+	-		-			+	-	-	-		+		-	+				
UK08	61.3		-		+	+	-	+	-	-	-		+		-	+		+		
UK09	84.1	+						+	-	-	-		+		-	+			+	
UK10	74.4					+	-	+	-		-		+		-				+	
UK12C1	72.1	+	-			+	-	+	-	-	-		+		-	+				
UK12C5	74.0	+	-			+	-	+	-	-	-		+	-	-	+				
UK12C6	63.9	+	-			+	-	+	-	-	-	-	+		-	+	-			
UK12C7	79.5		-			+	-	+	-	-	-		+		-	+				
UK12C9	70.3	+	-			+	-	+	-	-	-		+	-	-	+				+
UK12I	96.9			+		-	+	+	-	-			+							
UK12J	41.3		-	+		+	-	+	-	-	-		+	-	-	+				+
UK12K	92.2		-	+				+	-		-		+			+	-			
UK12L	45.9	+	-			+	-	+	-	-	-		+		-	+				
UK12M	74.0	+	-			+	-	+	-	-	-		+	-	-	+		+		
UK12N	11.3		-			+	-	+	-			-	+	-	-	+	-			
UK12O	52.6	+	-			+	-	+	-	-	-		+	-	-	+				
UK13	9.1	+	-					+	-	-	-	-	+	-		+				
RK14	23.9		-			+	-	+	-	-	-		+		-	+			+	-
UK14	28.2					+	-	+	-	-	-		+		-	+	-			
RK15	33.8		-			+	-	+	-	-	-		+		-	+				
UK16	69.6		-			+	-	+	-		-		+							
UK17	20.9	+	-			+	-	+	-	-	-	-	+	-	-	+	-			
RK18	17.6	+	-			+	-	+	-	-	-	-	+		-	+				
RK19	69.8	+	-	+		+		+	-	-	-		+		-	+	-			+
UK19	20.0							+	-		-		+		-					
UK20	13.6		-			+	-	+	-				+		-					
UK21A	57.1		-	+		+	-	+	-	-	-		+		-	+				
UK21B	60.1	+	-	+		+	-	+	-	-	-		+	-	-	+				
UK21C	51.8		-	+		+	-	+	-	-	-		+		-	+				
UK22	37.3	+	-			+	-	+	-	-	-		+		-	+				

AGE SEVENTEEN CONSUMER MATHEMATICS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RP01	75.6					+	−	+	−	−	−		+		−	+				
UP01A	75.6	+						+	−		−		+	−	−					+
UP01B	79.0	+	−			−	+	+	−		−		+	−	−	+				+
UP01C	30.4		−			+	−	+	−	−	−		+	−	−	+				+
UP01D	75.9							+	−		−		+	−	−	+				+
UP01E	75.5						+	+	−		−		+	−	−	+				+
RP02	55.8	+	−					+	−	−	−		+		−	+				
UP02	30.9		−					+	−	−	−		+							
RP03	40.3	+	−			+	−	+	−		−		+	−	−	+	−			
UP03B	1.1							+	−								−	−		
UP04	40.1			+				+	−	−					−					
UP04A	65.6		−	+		+	−	+	−	−	−		+		−	+				
UP04B	62.8		−	+				+	−	−	−		+		−	+				
UP04C	55.1		−			+	−	+	−	−	−		+		−	+				
UP04G	58.8		−	+		+	−	+	−	−	−		+		−	+				
UP04H	31.1		−	+		+	−	+	−	−	−		+		−	+				
RP05	36.6	+	−			+	−	+	−	−	−		+		−	+				
RP07	33.7					+	−	+	−	−	−		+	−	−	+				
UP07	13.9					+	−	+	−	−	−		+		−	+		−		
UP08	21.1					+		+	−	−	−	−	+	−	−		−			+
UP09	36.1	+			−			+	−	−	−		+	−	−	+				+
UP10	5.9					+	−	+	−		−	−	+			+		−		
UQ01	10.4					+	−	+	−		−		+		−	+	−			
RQ02	76.5	+	−			+		+	−	−	−		+	−	−	+		+		
UQ02A	78.8		−			+	−	+	−	−	−		+	−	−	+		+		
UQ02B	69.8	+	−					+	−	−			+	−	−					
UQ03	49.9		−			+	−	+	−	−	−		+		−	+				
RQ04	54.9		−			+	−	+	−	−	−	−	+		−	+			+	
UQ04	63.6					+	−	+	−	−	−		+		−	+				+
UQ05	53.5		−					+	−	−	−		+		−	+				
RQ05A	68.5	+	−			+	−	+	−	−	−		+		−	+		+		
RQ05B	20.6					+	−	+	−	−	−		+		−				+	
RQ06A	50.0		−	+		+	−	+	−	−	−		+		−	+		+		
RQ06B	69.8			+		+	−	+	−	−	−		+	−	−					+

AGE YOUNG ADU[illegible] NUMBERS AND NUMERATION CONCEPTS ALL EXERCISES

RELEASE #	NATIONAL	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
UA02A	4.7				+	+	-	+	-		-		+	-						
UA02B	5.9					+	-	+	-		-	-	+		-					
RA03	37.8							+	-	-			+			+				
UA03	91.4					-	+	+	-	-			+		-					
RA05	19.7		-			+	-	+	-		-		+	-	-	+				
UA12	69.7				+	+	-	+	-	-			+		-	+				
RA13	24.7					+	-	+	-	-	-	+	+		-	+				
RA14	51.5	+	-			+	-	+	-	-			+		-	+				
RB05	61.7		-					+	-	-	-	+	+		-	+				
RB06	86.3							+	-	-	-	+	+		-	+		+		
UB07	20.3					+	-	+	-	-	-		+	-	-	+				
RB07A	91.3		-			+	-	+	-	-		+	+		-	+				
RB07B	74.0		-			+	-	+	-	-		+	+		-	+			-	
RB08	35.8		-			+	-	+	-	-	-		+	-	-	+				
UB08	46.7		-			+	-	+	-	-	-	+	+	-	-	+				
UB11	33.4					+	-		-	-	-		+			+				-
RC01	86.2					-	+	+	-	-			+			+				
RC02A	96.9							+	-				+							
RC02B	91.5							+	-		-		+		-	+	+			
RC02C	80.8					+	-	+	-				+		-	+		+		
RC02D	92.8							+	-	-		+	+		-	+	+			
RC04	89.7			+				+	-	-			+		-					
RC08	66.6		-			+	-	+	-	-		+	+		-	+				
UC08	88.1							+	-	-					-	+				
UC09	75.0			+				+	-	-			+	+	-	+				
RC10	58.0					+	-	+	-	-	-	+	+		-	+				
RC12	90.4					+	-	+	-				+		-		+			
RC13	69.1					+	-	+	-	-		+	+	-	-	+				
UC13	74.8	+				+	-	+	-	-		+	+	+	-	+				
UC14A	93.4							+	-				+		-	+				
UC14B	86.9	+	-					+	-	-			+		-	+				
UC14C	77.3					+	-	+	-				+		-	+				
RC17	73.6					+	-	+	-	-		+	+		-	+				
UC17	19.8		-		+	+	-	+	-	-			+		-					
RC18	47.4					+	-	+	-	-			+		-	+				
RC19	79.8					+	-	+	-	-		+	+		-	+				
UC19	57.3	+	-			+	-	+	-	-	-	+	+	-	-	+				
RC20	61.8		-	+		+	-	+	-	-	-	+	+	-	-	+				
UC20	57.8					+	-	+	-	-	-	+	+		-	+		-		
UC21	54.1					+	-	+	-	-	-	+	+		-	+				
RC23	62.6		-					+	-	-	-	+	+		-	+				
UC25	39.2					+	-	+	-	-			+		-	+				
RC26	57.1		-			+	-	+	-	-			+		-		+			
RD04	5.3					+	-			-			+							

AGE YOUNG ADULTS MEASUREMENT CONCEPTS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RE01	81.5		-	+		+	-	+	-	-	-	+	+		-	+				
UE01A	96.2			+		+	-	+	-				+	+	-	+				
UE01B	92.1					+	-	+	-	-			+		-	+				
UE01C	94.8					+	-	+	-						-		+			
UE01D	98.5			+				+	-											
UE01E	89.2							+							-					+
RE03	83.0					+	-	+	-	-			+		-	+				
RE04	92.5		-	+				+	-	-			+		-					
RE05	41.9					+	-	+	-	-	-	+	+		-	+				
UE06	44.5		-		+	+	-	+	-	-			+		-	+				-
RE07	75.4					+	-	+	-	-		+	+		-	+				
RE08	85.7		-			+	-	+	-				+		-	+			+	
UE08	46.4		-		+	+	-	+	-	-		+	+		-	+				
RE09	61.0					+	-	+	-	-	-		+	+	-	+				
RE10	26.5				+	+	-	+	-	-	-		+	-	-	+				
UE10	63.7					+	-	+	-	-			+		-				+	
RE11	85.7			+				+	-	-		+	+		-					
UE12A	76.6					+	-	+	-	-	-	+	+		-	+				
UE12B	55.5					+	-	+	-	-			+		-		-			+
UE12C	69.4		-		+	+	-	+	-	-	-	+	+		-	+				
UE12E	39.7				+	+	-	+	-	-	-		+		-	+	-			
UE12F	34.7			+		+	-	+	-	-	-		+		-	+				
UE12H	19.6					+	-	+	-	-	-		+		-	+				
RE13	37.5					+	-	+	-	-			+		-					
UE13	81.4							+	-	-			+		-			+		
UE14	72.7			+				+	-	-	-	+	+		-					+
UE15	55.4					+	-	+	-	-	-		+		-	+				
RE16	66.8					+	-	+	-	-		+	+		-	+				
UE16	68.1							+	-				+		-					
UE18	66.2					+	-	+	-	-	-	+	+		-	+				
UE19	74.4					+	-	+	-	-		+	+		-	+				
UE20	48.4					+	-	+	-	-	-		+		-	+				

AGE YOUNG ADULTS VARIABLES AND THEIR RELATIONSHIPS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RF03	60.4					+	-	+	-	-	-		+		-	+				
RF04	34.9					+	-	+	-	-	-		+	-	-	+				
UF04	36.3					+	-	+	-	-	-	+	+	-	-	+				
RF06	49.0					+	-	+	-	-	-		+	-	-	+			+	
UF06A	18.3					+	-	+	-	-	-		+		-	+				
UF06B	12.0					+	-	+	-	-	-		+		-					
RG01	33.4		-		+	+	-	+	-	-	-		+		-	+				
UG01	26.8	+		-		+	-	+	-	-			+	-	-	+				
RG04	48.1		-			+	-	+	-	-	-	+	+	-	-	+				-
RG05	68.2					+	-	+	-	-			+		-					
UH02	55.9					+	-	+	-	-	-		+	-	-	+				
RH03	80.7					+	-	+	-	-	-	+	+		-	+	+			
UH03	24.7					+	-	+	-	-	-		+	-	-	+				-
UH04	64.0					+	-	+	-	-	-	+	+		-	+				
RH05	55.9					+	-	+	-	-	-		+		-	+				
UH08	10.1							-	+				-							
RH09	55.3					+	-	+	-	-	-	+	+		-	+				+
RN01	55.7	+		-				+	-	-			+			+			-	
UN01	74.8				+			+	-	-			+		-	+	+			
UN02	63.4							+	-	-			+		-	+				
RN03	42.8		-			+	-	+	-	-	-	+	+	-	-	+				

AGE YOUNG ADULTS PROBABILITY AND STATISTICS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UP	MC	SP
RJ01	35.6		-			+	-	+	-	-			+		-	+				
RJ02	23.1					+	-	+	-	-	-		+	-	-	+				
UJ02	17.3		-			+	-	+	-	-	-		+	-	-	+				
RJ04	38.9					+	-	+	-	-	-		+		-	+				
UJ04	4.6					+	-	+	-	-	-		+		-					
RJ05	28.5							+	-		-		+	-		+				
UJ05	52.8					+	-	+	-	-			+		-	+				
RJ06	68.9					+	-	+	-	-	-	+	+		-	+				
UJ06	4.6					+	-	+	-	-	-		+		-	+				-
UJ07	17.9					+	-	+	-	-	-		+	-	-	+				
UJ08	66.5							+	-	-			+		-	+				-
UJ09	37.9					+	-	+	-	-			+		-	+		+		

AGE YOUNG ADULTS GEOMETRIC FACTS AND RELATIONSHIPS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UP	MC	SP
UK01	52.9					+	-	+	-	-	-		+	-	-	+				
UK06A	86.2		-	+				+	-	-	-	+	+		-	+	+			
UK06B	80.6		-	+				+	-	-	-	+	+		-	+	-			
UK06C	73.3		-					+	-	-	-	+	+		-	+				
RK07	48.3		-			+	-	+	-	-			+	-	-	+				
RK08	30.1					+	-	+	-	-	-		+		-	+				
UK08	50.0					+	-	+	-	-	-	+	+		-					
UK09	73.8		-					+	-	-	-	+	+		-	+				
UK12C1	71.0		-		+	+	-	+	-	-		+	+	-	-	+		+		
UK12C5	72.1		-			+	-	+	-	-		+	+	-	-	+			+	
UK12C6	63.0					+	-	+	-	-			+	-	-	+		+	+	
UK12C7	78.9				+	+	-	+	-	-		+	+	-	-	+		+		
UK12C9	67.6					+	-	+	-	-		+	+	-	-	+				
UK12I	91.2							+	-	-		+	+		-	+				
UK12J	52.3	+	-			+	-	+	-	-	-	+	+	-	-	+				
UK12K	89.1					+	-	+	-	-		+	+		-					
UK12L	40.9		-			+	-	+	-	-		+	+		-	+				
UK12M	72.5		-			+	-	+	-	-		+	+		-					
UK12N	10.0					+	-	+	-	-	-		+	-	-		+			
UK12O	55.6	+	-			+	-	+	-	-	-	+	+		-	+				
RK14	18.5					+	-	+	-	-	-		+	-	-	+	-			
RK15	28.2					+	-	+	-	-			+		-					
UK16	81.7	-				+	-	+	-	-			+		-	+				
UK17	19.4					+	-	+	-	-	-		+	-	-	+				
RK18	26.4					+	-	+	-	-	-		+	-	-	+				
UK20	20.7					+	-	+	-	-	-		+		-					
UK21A	47.5		-			+	-	+	-	-	-	+	+		-	+	-			
UK21B	47.5		-		+	+	-	+	-	-	-	+	+		-	+	-			
UK21C	44.4		-		+	+	-	+	-	-	-		+		-	+				

AGE YOUNG ADULTS CONSUMER MATHEMATICS ALL EXERCISES

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	CHS	PHS	ER	LM	HM	MBC	U7	MC	SP
RP01	86.4		-			+	-	+	-	-		+	+		-	+	+			
UP01A	81.2				+	-	+	+	-	-	-	+	+		-	+				
UP01B	82.0				+	-	+	+	-	-			+		-	+				
UP01C	59.9		-			+	-	+	-	-	-	+	+		-	+				
UP01D	79.5				+	-	+	+	-	-	-	+	+		-	+	-			
UP01E	78.3				+	-	+	+	-	-			+		-	+	-			
RP02	67.7					+	-	+	-	-			+		-	+				
UP02	48.0	-						+	-	-		+	+		-	+				
RP03	56.4					+	-	+	-	-	-	+	+		-	+				
UP03B	15.6	-						+	-	-			+		-					
RP04	55.0		-			+	-	+	-	-			+		-	+				
UP04	45.3					+	-	+	-			+	+		-					
UP04A	75.5					+	-	+	-	-		+	+		-	+				
UP04B	66.4	+				+	-	+	-				+		-	+			-	
UP04C	59.3	+				+	-	+	-	-		+	+		-					+
UP04G	64.0					+	-	+	-	-			+		-	+				
UP04H	33.9					+	-	+	-	-			+		-	+				
RP05	57.3					+	-	+	-	-			+		-	+				
UP05D	86.5		-			-	+	+	-	-			+		-	+				
UP05E	67.0					+	-	+	-	-			+	-	-	+				
UP05F	90.2		-					+	-	-			+		-	+				
RP06	56.3					+	-	+	-	-	-		+		-	+	-			
UP06	27.1					+	-	+	-	-			+		-					
RP07	38.5					+	-	+	-	-			+		-					
UP07	34.6					+	-	+	-	-	-	+	+		-	+				
UP08	32.0					+	-	+	-	-	-		+		-	+				
UP09	66.1							+	-	-			+		-	+				
UP10	20.8		-			+	-	+	-	-	-		+		-	+				
UQ01	15.7	+				+	-	+	-	-				-						
RQ02	77.9		-			+	-	+	-	-		+	+		-	+				
UQ02A	76.1					+	-	+	-	-		+	+		-	+				
UQ02B	67.5		-			+	-	+	-	-			+		-	+				
UQ03	58.3					+	-	+	-	-			+		-	+				
RQ04	61.7	+				+	-	+	-	-		+	+	-	-	+				
UQ04	70.7		-		+	+	-	+	-	-			+		-	+				+
UQ05	49.0					+	-	+	-	-			+		-	+				
RQ05A	62.5		-			+	-	+	-	-	-	+	+		-	+				
RQ05B	25.2					+	-	+	-	-	-		+		-					
UQ06	71.1							+	-	-		+	+		-	+				
RQ06A	53.8		-			+	-	+	-	-		+	+		-	+				
RQ06B	70.3					+	-	+	-	-		+	+		-	+				

APPENDIX B

SIGNIFICANCE CHARTS BY GROUP FOR EACH MAJOR CONTENT AREA AT EACH AGE – OVERLAP EXERCISES

To determine the performance of a reporting group on the specific exercises or exercise parts included in the age-overlap summaries for each of the major content areas, the following list is provided. All of the overlap exercises included in the content-area overlap summaries (9—13, 13—17 and 17—adult) are listed by release number for each age, and the national percentage is given. A "+" sign indicates that the performance of the reporting group was significantly above the national level of performance; a "-" sign indicates that the reporting group performed significantly below the national level of performance. The absence of either sign indicates that the performance of the reporting group did not differ significantly from the national level of performance. To be considered significant, the difference between the group and the nation had to be greater (in absolute value) than twice its statistical significance. For example, the national percentage for 9-year-olds on Exercise UA03 (which was included in the number-and-numeration overlap summary for 9- and 13-year-olds) was 42.0; the percentage for 9-year-olds in the Central region was significantly higher, the percentage for those in the Southeast significantly lower, and the percentages for 9-year-olds in the Northeast and West did not differ significantly from the national percentage. For 13-year-olds, the national percentage was 75.3 on Exercise UA03; the percentage for 13-year-olds in the Northeast was significantly higher, while those for the 13-year-olds in the Southeast, Central and West did not differ significantly from that of the nation.

The standard abbreviations and definitions used in this appendix are presented in Chapter 1. For the reader who wishes to determine the content of a specific exercise or the exact results for a reporting group on an exercise, the exercise may be located by its release number in the *Math Technical Report: Exercise Volume, Report 04-MA-20.*

AGE NINE NUMBERS AND NUMERATION CONCEPTS OVERLAP EXERCISES FOR NINES AND THIRTEENS

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MDC	UF	MC	SP
UA03	42.0		-	+				+	-	-			+			+				
RA05	8.0					+	-	+	-						-					
RA07	73.8	+						+	-				+	-	-	+		+		
UA08	88.4	+	-					+	-	-			+	-	-	+		+		
RA11	7.0					+	-						+	-						
UA11	9.1		-					+	-	-			+	-	-					
UA13	18.2	+	-					+	-	-	-		+		-	+		-		
UB01	86.1	+	-	+		-	+	+	-	-	-	+	+		-	+	+	+	+	
RB02A	81.9		-					+	-				+		-	+				
RB02B	85.8							+	-	-			+		-	+				+
RB03A	94.3		-		+	-	+	+	-						-	+			+	
RB03B	81.5		-		+	-	+	+	-	-			+		-	+		+		
RB03C	87.8							+	-				+		-	+				
UB04	85.4							+	-				+		-	+		+		
RB06	41.9							+	-			+	+		-			+		
UB06	44.7	+	-	+	-			+	-				+		-	+				
UB07	0.2			-		+	-	+	-	-	-			-	-		-	-	-	
RB09	15.0							-	+	+										-
RB10	3.2				+							+								
RC01	39.9	+	-			-	+	+	-				+		-	+				
UC01	69.3	+						+	-		-		+		-	+				
UC02	53.1	+	-			-	+	+	-	-	-		+	-	-	+		+		
RC02A	79.0	+	-	+	-	-	+	+	-	-	-		+		-	+		+		
RC02B	55.0	+	-			-	+	+	-	-			+		-	+				
RC02C	25.2	+	-					+	-		-	+	+		-			+		
RC02D	15.2	+	-					+	-	-			+		-	+	-			
RC03	21.5	+	-					+	-	-			+		-	+	-	+		
RC04	27.2	+	-					+	-	-			+		-	+				
UC04	30.5	+	-		-			+	-	-	-		+		-	+				
UC05	33.6	+	-					+	-	-			+		-	+			-	
UC08	29.2	+	-		-	-	+	+	-	-			+		-	+			-	
RC09	4.3					+	-	+	-				+		-					
UC09	3.8		-					+	-	-			+		-			+		-
RC11	16.0	+	-					+	-	-			+	-	-	+				
RC13	6.4		-			+	-	+	-	-			+	-	-	+				
UC14A	72.3							+	-	-	-		+	-						
UC14B	28.0	+	-	+	-	-	+	+	-	-	-		+		-					
UC14C	5.1		-					+	-	-		-	+	-						
UC15	13.7		-		+	+	-	+	-	-			+	-	-	+				
UC16	17.4		-			+	-	+	-				+		-		-			
UC24	14.3	+	-			+	-	+	-		-		+							
RD04	5.1									-			+							-
UD05	44.8		-					+	-	-	-	+	+		-	+		+		

AGE THIRTEEN NUMBERS AND NUMERATION CONCEPTS OVERLAP EXERCISES FOR NINES AND THIRTEENS

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UP	MC	SP
UA03	75.3	+				-	+	+	-	-			+		-	+			+	
RA05	58.4	+			-	-	+	+	-	-	-		+		-					
RA07.	91.4	+	-	+				+	-				+		-	+				
UA08	96.1																			
RA11	64.9	+				-	+	+	-	-	-		+		-	+				
UA11	65.1	+	-	+	-			+	-	-	-		+		-	+	-			
UA13	77.2	+		+	-			+	-	-			+		-	+				
UB01	97.7		-					+	-	-			+		-	+				+
RB02A	95.9			+				+	-				+			+				
RB02B	96.8							+	-				+			+				
RB03A	98.1		-					+	-				+		-					+
RB03B.	94.8							+	-				+		-	+		+		
RB03C	94.2		-					+	-	-			+		-	+				
UB04	95.2							+	-						-					
RB06	82.2	+	-	+		-	+	+	-	-	-	+	+		-	+				
UB06	73.9	+				+	-	+	-				+	-	-		+			
UB07	3.3		-		-	+	-	+	-	-	-		+		-					
RB09	17.8								+											
RB10	26.2		-	+		+	-	+	-	-	-		+		-			+		
RC01	84.3	+	-	+	-	-	+	+	-							+	+			
UC01	91.2							+	-	-			+		-					
UC02	82.8	+	-					+	-	-	-		+		-	+				
RC02A	94.3					-	+	+	-											
RC02B	88.9	+				-	+	+	-		-		+		-	+				
RC02C	82.6		-	+	-	-	+	+	-		-		+		-	+				
RC02D	88.5	+						+	-		-	+	+		-	+				
RC03	71.7	+	-					+	-	-			+		-	+				+
RC04	80.0		-					+	-	-	-	+	+		-	+				
UC04	75.2		-	+				+	-	-			+		-					
UC05	79.9	+			-	-	+	+	-	-			+		-	+				
UC08	83.8					-	+	+	-				+		-					+
RC09	67.1	+	-			-	+	+	-	-	-		+		-	+				
UC09	68.9			+		-	+	+	-				+		-	+				
RC11	60.0	+	-		-			+	-	-	-		+		-	+				
RC13	44.1	+	-		-	+	-	+	-	-	-		+		-	+				
UC14A	89.4												+							
UC14B	71.0					-	+	+	-	-			+				-	+		
UC14C	66.6		-					+	-	-	-		+		-	+				
UC15	68.9		-					+	-	-	-		+		-	+				
UC16	56.6			+		+	-	+	-	-	-		+		-					
UC24	62.5	+	-			+	-	+	-		-		+		-	+				
RD04	42.8	+	-			-	+	+	-	-	-		+		-	+				
UD05	88.2	+	-					+	-	-	-		+		-	+		+		

AGE THIRTEEN NUMBERS AND NUMERATION CONCEPTS OVERLAP EXERCISES FOR THIRTEEN AND SEVENTEEN

RELEASE #	NATIONAL P	NE	SE	C	W	E	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LH	HH	HBC	UF	MC	SP
UA02A	8.9							+	-		-		+		-					
UA02B	18.0	+			-			+	-	-	-		+							
RA03	41.6							+	-	-		-	+		-	+				
UA03	75.3	+				-	+	+	-	-			+		-	+			+	
RA05	58.4	+			-	-	+	+	-	-	-		+		-					
UA05	59.4	+	-					+	-	-	-		+	-	-	+		+		
UA06	21.7				-			+	-	-			+		-					
RA08	51.2		-					+	-	-	-		+		-	+				
RA09	20.9		-			+	-	+	-	-	-		+		-	+				
UA10	41.1	+	-		-			+	-	-	-		+		-	+				
RA11	64.9	+				-	+	+	-	-	-		+		-	+				
RA13	20.4							+	-	-	-	-	+		-	+				
RA14	11.9	+	-					+	-	-	-	-	+		-	+				
RA15	40.9	+			-			+	-		-		+		-	+			-	
RB01	56.6	+	-					+	-	-	-		+		-	+				
UB03	67.2				-			+	-				+		-					+
RB05	71.6	+				-	+	+	-	-	-		+		-	+				
RB06	82.2	+	-	+		-	+	+	-	-	-	+	+		-	+				
UB07	3.3		-		-	+	-	+	-	-	-		+		-					
RB07A	84.3		-	+		+	-	+	-	-			+		-	+				
RB07B	51.5	+	-	+		+	-	+	-	-			+		-	+				
RB08	18.9	+			-	+	-	+	-	-	-	-	+		-	+			+	-
UB0H	15.6		-			+	-	+	-	-	-		+		-	+				
RB09	17.8								+											
UB09	55.9		-	+		+	-	+	-	-			+		-					+
RB10	26.2		-	+		+	-	+	-	-	-		+		-			+		
UB10	24.4				-	-	+	+	-	-	-		+		-					
UB11	58.1				-	-	+	+	-	-	-		+		-	+				
RC01	84.3	+	-	+	-	-	+	+	-							+	+			
UC02	82.8	+	-					+	-	-	-		+		-	+				
RC02A	94.3					-	+	+	-											
RC02B	88.9	+				-	+	+	-		-		+		-	+				
RC02C	82.6		-	+	-	-	+	+	-		-		+		-	+				
RC02D	88.5	+						+	-		-	+	+		-	+				
RC04	80.0		-					+	-	-	-	+	+		-	+				
UC04	75.2		-	+				+	-	-			+		-					
RC08	38.5	+	-			+	-	+	-	-	-		+		-	+				
UC08	83.8					-	+	+	-				+		-					+
RC09	67.1	+	-			-	+	+	-	-	-		+		-	+				
UC09	68.9			+		-	+	+	-				+		-	+				
RC10	30.8	+		+	-			+	-	-	-		+		-	+				
UC11	66.4		-	+	-			+	-	-	-		+		-	+				
UC12	39.4							+	-	-			+		-	+	-			
RC13	44.1	+	-		-	+	-	+	-	-	-		+		-	+				
UC14A	89.4												+							
UC14B	71.0					-	+	+	-	-			+				-	+		
UC14C	66.6		-					+	-	-	-		+		-	+				
RC15	41.9	+	-			-	+	+	-	-	-		+	-	-	+		+		
UC15	68.9		-					+	-	-	-		+		-	+				
RC16	62.3					-	+	+		-			+		-					
UC16	56.6			+		+	-	+	-	-	-		+		-					
RC17	60.5	+	-			-	+	+	-	-	-		+		-	+				
RC18	17.4	+	-		-	+	-	+	-	-			+	-	-	+				
UC18	47.7	+			-	-	+	+	-	-			+		-	+				

AGE THIRTEEN NUMBERS AND NUMERATION CONCEPTS OVERLAP EXERCISES FOR THIRTEEN AND SEVENTEEN

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
UC19	24.6	+	-			+	-	+	-	-	-		+	-	-	+	-			
RC20	9.6		-					+	-	-		-	+		-	+				-
UC20	28.6	+			-	+	-	+	-	-	-		+	-	-	+				
UC24	62.5	+	-			+	-	+	-		-		+		-	+				
RC24A	66.3				-			+	-				+		-	+				
RC24B	39.0									-	-		+					+		
UC25	10.2					+	-				-		+		-					
RC25A	47.1							+	-		-		+		-	+	-		+	
RC25B	39.4		-					+	-	-	-		+		-	+				
RD01	58.3		-	+	-			+	-	-	-	-	+		-	+				
RD03	29.2											-	+			+				-
UD03	39.0	+			-			+	-	-	-		+		-					
RD04	42.8	+	-			-	+	+	-	-	-		+		-	+				
UD04	59.2	+	-					+	-	-	-		+		-	+	+			

AGE SEVENTEEN NUMBERS AND NUMERATION CONCEPTS OVERLAP EXERCISES FOR THIRTEEN AND SEVENTEEN

RELEASE #	NATIONAL P	NE	SE	C	W	N	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	NBC	UP	NC	SP
UA02A	7.8					+	-	+	-	-			+		-					
UA02B	14.1			+		+	-	+	-	-	-	-	+		-				+	
RA03	49.8							+	-		-		+		-					
UA03	91.5							+	-	-	-		+	-	-	+	-			+
RA05	69.0							+	-	-	-		+		-	+		+		
UA05	72.0	+	-					+	-	-	-		+		-	+				
UA06	25.6	+	-		-			+	-	-	-		+		-	+				
RA08	72.2	+	-					+	-	-	-		+		-	+			+	
RA09	38.5	+				+	-	+	-	-	-		+	-	-	+	-			+
UA10	57.5		-	+				+	-	-	-		+		-	+		+		
RA11	81.2	+			-			+	-	-	-		+		-					+
RA13	35.9					+	-	+	-	-	-		+	-	-	+			+	
RA14	40.8					+	-	+	-	-	-		+		-	+				
RA15	64.7		-			+	-	+	-	-	-		+		-	+				+
RB01	78.8	+	-	+				+	-	-	-		+		-	+				
UB03	80.5		-					+	-	-	-		+		-	+				
RB05	79.5							+	-	-	-		+		-					
RB06	88.2	+			-			+	-	-	-		+		-					
UB07	13.9	+	-			+	-	+	-	-	-		+		-	+				
RB07A	92.8		-	+		+	-	+	-		-		+		-					+
RB07B	75.3		-			+	-	+	-	-	-		+		-	+				+
RB08	38.6	+	-			+	-	+	-	-	-		+		-	+				+
UB08	48.7	+	-			+	-	+	-	-	-		+		-	+	-			
RB09	40.9	+	-			+	-	+	-	-	-	-	+		-	+	-			
UB09	83.2		-	+		+	-	+	-	-	-		+	-	-	+				
RB10	49.2		-			+	-	+	-	-	-		+		-					
UB10	50.2	+	-					+	-	-	-	-	+		-	+			+	
UB11	71.6							+	-	-	-		+	-		+				
RC01	92.5					-	+	+	-		-		+		-	+				
UC02	92.6			+				+	-	-			+		-			+		
RC02A	96.8	-		+				+	-				+		-					
RC02B	91.6					-	+	+	-		-		+							
RC02C	87.5							+	-	-	-		+		-					
RC02D	93.2							+	-		-		+		-	+				+
RC04	88.8					-	+	+	-	-	-		+		-			+		+
UC04	87.3							+	-	-			+	-	-	+				
RC08	64.6	+	-	+		+	-	+	-	-	-		+	-	-	+		+		
UC08	89.8	+						+	-	-	-		+		-		+	+		
RC09	79.7					+	-	+	-	-	-		+		-				+	+
UC09	81.0					-	+	+	-	-	-		+		-	+				
RC10	52.6	+		-				+	-	-	-	-	+		-	+				
UC11	85.4	+	-					+	-	-	-		+		-			+		
UC12	63.5					+	-	+	-	-	-	-	+		-					+
RC13	68.1	+	-			+		+	-	-	-		+		-	+				
UC14A	93.5		-	+				+	-			+			-					
UC14B	80.5		-			-	+	+	-	-	-		+		-	+		+		
UC14C	77.5	+	-					+	-	-	-		+		-	+				+
RC15	66.2							+	-	-	-		+		-					+
UC15	83.7		-			+	-	+	-	-	-		+	-	-	+		+	+	
RC16	73.5							+	-	-	-		+		-					
UC16	77.7							+	-	-	-		+		-	+				
RC17	78.0		-					+	-	-			+		-	+			+	
RC18	44.5		-			+	-	+	-	-	-	-	+		-	+				
UC18	72.6	+						+	-	-	-		+		-	+			+	

AGE SEVENTEEN NUMBERS AND NUMERATION CONCEPTS OVERLAP EXERCISES FOR THIRTEEN AND SEVENTEEN

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
UC19	58.0	+	-	+	-	+	-	+	-	-	-		+		-	+				
RC20	40.8		-					+	-	-	-		+		-	+				
UC20	60.9	+	-			+	-	+	-	-	-		+		-	+	-			
UC24	84.2		-	+		+	-	+	-	-	-		+	-	-	+			+	
RC24A	78.1							+	-	-	-		+		-	+	-			
RC24B	68.4							+	-	-	-	-	+		-	+				
UC25	26.2		-			+	-	+	-	-	-		+		-					
RC25A	64.1	+	-					+	-	-	-	-	+	-	-	+			+	
RC25B	64.5		-					+	-	-	-	-	+		-	+	-			
RD01	76.0							+	-	-	-		+	-	-	+				
RD03	43.7			+	-			+	-	-	-		+	-	-	+				
UD03	56.6							+	-	-	-		+		-	+				
RD04	55.1	+						+	-	-	-	-	+		-	+				
UD04	71.0		-					+	-	-	-		+		-	+		+	+	

AGE SEVENTEEN   NUMBERS AND NUMERATION CONCEPTS   OVERLAP EXERCISES FOR SEVENTEEN AND ADULT

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
UA02A	7.8					+	-	+	-	-			+		-					
UA02B	14.1			+		+	-	+	-	-	-	-	+		-				+	
RA03	49.8							+	-		-		+		-					
UA03	91.5							+	-	-	-		+	-	-	+	-			+
RA05	69.0							+	-	-	-		+		-	+		+		
UA12	69.3		-			+	-	+	-	-	-		+	-	-	+				+
RA13	35.9					+	-	+	-	-	-		+	-	-	+			+	
RA14	40.8					+	-	+	-	-	-		+		-	+				
RB05	79.5							+	-	-	-		+		-					
RB06	88.2	+			-			+	-	-	-		+		-					
UB07	13.9	+	-			+	-	+	-	-	-		+		-	+				
RB07A	92.8		-	+		+	-	+	-		-		+		-				+	+
RB07B	75.3		-			+	-	+	-	-	-		+		-	+				+
RB08	38.6	+	-			+	-	+	-	-	-		+		-	+				+
UB08	48.7	+	-			+	-	+	-	-	-		+		-	+	-			
UB11	71.6							+	-	-	-		+	-		+				
RC01	92.5					-	+	+	-		-		+		-	+				
RC02A	96.8	-		+				+	-				+		-					
RC02B	91.6					-	+	+	-		-		+							
RC02C	87.5							+	-	-	-		+		-					
RC02D	93.2							+	-		-		+		-	+				+
RC04	88.8					-	+	+	-	-	-		+		-			+		+
RC08	64.6	+	-	+		+	-	+	-	-	-		+	-	-	+		+		
UC08	89.8	+						+	-	-	-		+		-		+	+		
UC09	81.0					-	+	+	-	-	-		+		-	+				
RC10	52.6	+		-				+	-	-	-	-	+		-	+				
RC12	89.0	+	-			+	-	+	-	-			+	-	-	+				
RC13	68.1	+	-			+		+	-	-	-		+		-	+				
UC14A	93.5		-	+				+	-			+			-					
UC14B	80.5		-			-	+	+	-	-	-		+		-	+		+		
UC14C	77.5	+	-					+	-	-	-		+		-	+				
RC17	78.0		-					+	-	-			+		-	+			+	
UC17	10.3		-			+	-	+	-	-			+	-	-					
RC18	44.5		-			+	-	+	-	-	-	-	+		-	+				
RC19	70.0	+				+	-	+	-	-	-		+	-	-	+				+
UC19	58.0	+	-	+	-	+	-	+	-	-	-		+		-	+				
RC20	40.8		-					+	-	-	-		+		-	+				
UC20	60.9	+	-			+	-	+	-	-	-		+		-	+	-			
UC21	27.3					+	-	+	-	-	-		+		-		-			
RC23	52.5					+	-	+	-	-	-		+		-					+
UC25	26.2		-			+	-	+	-	-	-		+		-					
RC26	46.7	+	-			+	-	+	-	-	-		+		-	+	+			
RD04	55.1	+						+	-	-	-	-	+		-	+				

AGE YOUNG ADULTS　　NUMBERS AND NUMERATION CONCEPTS　　OVERLAP EXERCISES FOR SEVENTEEN AND ADULT

RELEASE #	NATIONAL P	NE	SE	C	W	N	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LN	HN	NDC	UF	NC	SP
UA02A	4.7				+	+	-	+	-		-		+	-						
UA02B	5.9					+	-	+	-		-	-	+		-					
RA03	37.8							+	-	-			+			+				
UA03	91.4					-	+	+	-	-			+		-					
NA05	19.7		-			+	-	+	-		-		+	-	-	+				
UA12	69.7				+	+	-	+	-	-			+		-	+				
RA13	24.7					+	-	+	-	-	-	+	+		-	+				
RA14	51.5	+	-			+	-	+	-	-			+		-	+				
RB05	61.7		-					+	-	-	-	+	+		-	+				
RB06	86.3							+	-	-	-	+	+		-	+		+		
UB07	20.3					+	-	+	-	-	-		+	-	-	+				
RB07A	91.3		-			+	-	+	-	-		+	+		-	+				
RB07B	74.0		-			+	-	+	-	-		+	+		-	+			-	
RB08	35.8		-			+	-	+	-	-	-		+	-	-	+				
UB08	46.7		-			+	-	+	-	-	-	+	+	-	-	+				
UB11	33.4					+	-		-	-	-		+			+				-
RC01	86.2					-	+	+	-	-			+			+				
RC02A	96.9							+	-				+							
RC02B	91.5							+	-		-		+		-	+	+			
RC02C	80.8					+	-	+	-				+		-	+		+		
RC02D	92.8							+	-	-		+	+		-	+	+			
RC04	89.7			+				+	-	-			+		-					
RC08	66.6		-			+	-	+	-	-		+	+		-	+				
UC08	88.1							+	-	-					-	+				
UC09	75.0			+				+	-	-			+	+	-	+				
RC10	58.0					+	-	+	-	-	-	+	+		-	+				
RC12	90.4					+	-	+	-				+		-		+			
RC13	69.1					+	-	+	-	-		+	+	-	-	+				
UC14A	93.4							+	-				+		-	+				
UC14B	86.9	+	-					+	-	-			+		-	+				
UC14C	77.3					+	-	+	-				+		-	+				
RC17	73.6					+	-	+	-	-		+	+		-	+				
UC17	19.8		-		+	+	-	+	-	-			+		-					
RC18	47.4					+	-	+	-	-			+		-	+				
RC19	79.8					+	-	+	-	-		+	+		-	+				
UC19	57.3	+	-			+	-	+	-	-	-	+	+	-	-	+				
RC20	61.8		-	+		+	-	+	-	-	-	+	+	-	-	+				
UC20	57.8					+	-	+	-	-	-	+	+		-	+		-		
UC21	54.1					+	-	+	-	-	-	+	+		-	+				
RC23	62.6		-					+	-	-	-	+	+		-	+				
UC25	39.2					+	-	+	-	-			+		-	+				
RC26	57.1		-			+	-	+	-	-			+		-		+			
RD04	5.3					+	-			-			+							

AGE NINE MEASUREMENT CONCEPTS

OVERLAP EXERCISES FOR NINES AND THIRTEENS

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RE01	14.7					+	-		-				+						+	
UE01A	81.9	+	-					+	-	-	-		+		-	+		+		
UE01B	36.1							-	+							+	-			
UE01C	83.4		-					+	-	-		+	+		-	+				
UE01D	53.9		-			+	-	+	-	-			+		-	+		+		
UE01E	82.8	+	-					+	-	-		+			-	+	+			
UE07	10.8		-					+	-				+		-	+	-	+		
UE11A	14.5		-			+	-	+	-	-		-	+		-	+				
UE11B	60.2		-	+		+	-	+	-	-	-		+	-	-	+	-	+	+	
UE11C	84.2		-	+				+	-				+		-	+				
UE11D	1.5		-						-	-			+							
UE11E	81.5		-	+				+	-				+		-	+				
UE11F	47.5		-	+		+	-	+	-	-	-		+		-	+				
UE11I	17.9	-	-	+				+	-	-			+		-					
UE11K	16.1					+	-	+	-		-	-	+		-	+				-
RE12	80.0	+	-			+	-	+	-	-			+		-	+		+		
RE15	43.9	+	-			+	-	+	-	-			+		-	+		+		
UE17A	92.1		-	+		+	-	+	-				+							
UE17B	18.9	+	-			+	-	+	-	-	-		+		-					
UE17C	22.8		-	+		+	-	+	-	-	-		+		-	+				
UE17E	40.0	+	-			+	-	+	-	-	-	-	+		-	+				
UE17F	46.0	+	-			+	-	+	-					-					-	

AGE THIRTEEN MEASUREMENT CONCEPTS

OVERLAP EXERCISES FOR NINES AND THIRTEENS

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RE01	68.7	+	-			+	-	+	-		-		+		-	+				
UE01A	94.1					+	-	+	-				+		-				-	+
UE01B	72.7	+	-			+	-	+	-	-			+		-	+				
UE01C	91.9		-					+	-				+		-	+				
UE01D	86.7	+	-					+	-	-	-		+		-	+		+		-
UE01E	91.6																			
UE07	63.8	+			-			+	-		-		+		-	+				
UE11A	53.9		-			+	-	+	-	-	-		+		-	+				
UE11B	83.0	+	-		+			+	-	-	-		+		-	+				
UE11C	92.6		-					+	-	-			+			+				
UE11D	24.6		-	+		+	-	+	-	-	-		+		-	+				
UE11E	90.9	+	-					+	-				+				-			
UE11F	72.6					+	-	+	-	-			+		-	+				
UE11I	42.7					+	-	+	-	-	-		+			+				
UE11K	39.4		-			+	-	+	-	-	-		+		-					
RE12	91.0								-							+				
RE15	84.0	+			-	+	-	+	-				+		-	+	-			
UE17A	95.8					+	-	+	-											
UE17B	55.5	+	-	+		+	-	+	-	-	-		+		-	+	-			
UE17C	51.6		-	+		+	-	+	-	-	-		+		-		-			
UE17E	71.8		-	+		+	-	+	-	-	-	+	+		-	+				
UE17F	56.2							+	-											

AGE THIRTEEN MEASUREMENT CONCEPTS OVERLAP EXERCISES FOR THIRTEEN AND SEVENTEEN

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MDC	UF	MC	SP
RE01	68.7	+	-			+	-	+	-		-		+		-	+				
UE01A	94.1					+	-	+	-				+		-				-	+
UE01B	72.7	+	-			+	-	+	-	-			+		-	+				
UE01C	91.9		-					+	-				+		-	+				
UE01D	86.7	+	-					+	-	-	-		+		-	+		+		-
UE01E	91.6																			
RE03	62.6	+	-					+	-				+			+				
RE04	76.1	+	-					+	-	-	-	+	+		-	+				
UE06	37.1	+	-					+	-	-	-		+		-	+			+	
RE07	45.6		-			+	-	+	-	-	-		+		-	+			+	
RE08	73.9	+	-			+	-	+	-	-			+		-	+				
RE10	6.7	+	-					+	-		-		+		-					
RE13	16.7																			
UE13	58.6	+	-		-			+	-	-	-	+	+		-	+				
UE14	43.0	+	-		-	+	-	+	-	-			+		-	+				
UE15	23.4	+	-			+	-	+	-	-	-		+		-	+			+	
RE16	41.6		-	+		+	-	+	-	-	-		+		-					
UE16	44.5	+						+	-				+		-					
UE18	47.0				-	+	-	+	-	-			+		-	+			+	

AGE SEVENTEEN MEASUREMENT CONCEPTS OVERLAP EXERCISES FOR THIRTEEN AND SEVENTEEN

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MDC	UF	MC	SP
RE01	89.1	+	-			+	-	+	-	-			+	-	-	+		+		
UE01A	96.8			+				+	-	-			+			+		+		
UE01B	84.7	+			-			+	-	-	-	+	+		-	+				
UE01C	94.4							+	-				+	+				+		
UE01D	94.4	+						+	-	-		+	+		-	+				
UE01E	93.2					-	+										+			
RE03	82.4	+	-			+	-	+	-	-	-		+	-	-	+		+		
RE04	91.8					+	-	+	-		-		+		-	+			+	
UE06	53.8					+	-	+	-	-	-	-	+	-	-	+				
RE07	66.4	+				+	-	+	-	-	-		+		-	+	-			+
RE08	85.6	+	-					+	-	-	-		+		-	+				
RE10	28.2	+	-					+	-	-	-	-	+		-	+				
RE13	30.1		-			+	-	+	-		-		+		-					+
UE13	77.9	+						+	-		-		+		-		-			+
UE14	64.2	+			-	+	-	+	-	-	-		+		-	+				
UE15	48.8		-			+	-	+	-	-	-		+		-					+
RE16	59.3		-			+	-	+	-	-	-		+		-	+				
UE16	60.4					+	-	+	-	-	-		+		-	+				
UE18	65.4	+	-			+	-	+	-	-	-		+		-	+				

AGE SEVENTEEN MEASUREMENT CONCEPTS OVERLAP EXERCISES FOR SEVENTEEN AND ADULT

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RE01	89.1	+	-			+	-	+	-	-			+	-	-	+		+		
UE01A	96.8			+				+	-	-			+			+		+		
UE01B	84.7	+			-			+	-	-	-	+	+		-	+				
UE01C	94.4							+	-				+	+				+		
UE01D	94.4	+						+	-	-		+	+		-	+				
UE01E	93.2					-	+										+			
RE03	82.4	+	-			+	-	+	-	-	-		+	-	-	+		+		
RE04	91.8					+	-	+	-		-		+		-	+			+	
RE05	35.0					+	-	+	-	-	-		+		-	+				
UE06	53.8					+	-	+	-	-	-	-	+	-	-	+				
RE07	66.4	+				+	-	+	-	-	-		+		-	+	-			+
RE08	85.6	+	-					+	-	-	-		+		-	+				
UE08	57.2	+				+	-	+	-	-	-		+		-	+				
RE09	41.0		-			+	-	+	-	-	-		+		-	+				-
RE10	28.2	+	-					+	-	-	-	-	+		-	+				
UE10	60.4			+		+	-	+	-		-		+		-					+
RE11	80.7	+						+	-	-	-		+		-	+				
UE12A	68.9		-	+		+	-	+	-	-	-		+		-	+		+	-	
UE12B	54.3		-	+		+	-	+	-	-	-		+		-	+				
UE12C	58.4		-	+		+	-	+	-		-	-	+		-	+				
UE12E	28.6		-		+	+	-	+	-	-	-	-	+		-	+				
UE12F	16.3		-			+	-	+	-		-		+		-	+				
UE12H	9.2					+	-	[illegible]	-		-		+		-	+				+
RE13	30.1		-			+	-	+	-		-		+		-					+
UE13	77.9	+						+	-		-		+		-		-			+
UE14	64.2	+			-	+	-	+	-	-	-		+		-	+				
UE15	48.8		-			+	-	+	-	-	-		+		-					+
RE16	59.3		-			+	-	+	-	-	-		+		-	+				
UE16	60.4					+	-	+	-	-	-		+		-	+				
UE18	65.4	+	-			+	-	+	-	-	-		+		-	+				
UE19	64.6		-			+	-	+	-	-	-		+		-	+				
UE20	39.4	+	-			+	-	+	-	-	-		+		-	+				

AGE YOUNG ADULTS MEASUREMENT CONCEPTS OVERLAP EXERCISES FOR SEVENTEEN AND ADULT

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RE01	81.5		-	+		+	-	+	-	-	-	+	+		-	+				
UE01A	96.2			+		+	-	+	-				+	+	-	+				
UE01B	92.1					+	-	+	-	-			+		-	+				
UE01C	94.8					+	-	+	-						-		+			
UE01D	98.5			+				+	-											
UE01E	89.2							+							-					+
RE03	83.0					+	-	+	-	-			+		-	+				
RE04	92.5		-	+				+	-	-			+		-					
RE05	41.9					+	-	+	-	-	-	+	+		-	+				
UE06	44.5		-		+	+	-	+	-	-			+		-	+				-
RE07	75.4					+	-	+	-	-		+	+		-	+				
RE08	85.7		-			+	-	+	-				+		-	+			+	
UE08	46.4		-		+	+	-	+	-	-		+	+		-	+				
RE09	61.0					+	-	+	-	-	-		+	+	-	+				
RE10	26.5				+	+	-	+	-	-	-		+	-	-	+				
UE10	63.7					+	-	+	-	-			+		-				+	
RE11	85.7			+				+	-	-		+	+		-					
UE12A	76.6					+	-	+	-	-	-	+	+		-	+				
UE12B	55.5					+	-	+	-	-			+		-		-			+
UE12C	69.4		-		+	+	-	+	-	-	-	+	+		-	+				
UE12E	39.7				+	+	-	+	-	-	-		+		-	+	-			
UE12F	34.7			+		+	-	+	-	-	-		+		-	+				
UE12H	19.6					+	-	+	-	-	-		+		-	+				
RE13	37.5					+	-	+	-	-			+		-					
UE13	81.4							+	-	-			+		-			+		
UE14	72.7			+				+	-	-	-	+	+		-					+
UE15	55.4					+	-	+	-	-	-		+		-	+				
RE16	66.8					+	-	+	-	-		+	+		-	+				
UE16	68.1							+	-				+		-					
UE18	66.2					+	-	+	-	-	-	+	+		-	+				
UE19	74.4					+	-	+	-	-		+	+		-	+				
UE20	48.4					+	-	+	-	-	-		+		-	+				

AGE NINE VARIABLES AND THEIR RELATIONSHIPS OVERLAP EXERCISES FOR NINES AND THIRTEENS

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
UH01	3.3							-							+					
RH03	49.2		-	+				+	-	-			+	-	-	+				
UH06	25.6		-			+	-	+	-		-		+		-					
UN01	54.3		-	+				+	-				+		-	+			+	
UN03	2.4									-			+	-						

AGE THIRTEEN VARIABLES AND THEIR RELATIONSHIPS OVERLAP EXERCISES FOR NINES AND THIRTEENS

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
UH01	29.3	+				-	+	+	-	-		-	+	-	-					+
RH03	84.6		-	+				+	-	-			+		-	+				
UH06	74.8				-	-	+	+	-	-	-		+		-	+				
UN01	81.4		-					+	-	-	-		+		-	+				
UN03	24.7				-	+	-	+	-	-	-		+		-					

AGE THIRTEEN   VARIABLES AND THEIR RELATIONSHIPS   OVERLAP EXERCISES FOR THIRTEEN AND SEVENTEEN

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PES	ER	LM	HM	MBC	UF	MC	SP
RP01	49.6	+			-	-	+	+	-	-	-		+		-	+				+
UP01	59.6		-	+		-	+	+	-	-	-		+		-	+				
RP02	16.7							+	-				+		-					
UP02	38.8	+			-			+	-	-	-		+		-	+				
RP03	37.3	+	-					+	-	-	-		+		-	+				
RP06	37.5	+				+	-	+	-	-	-		+						+	
RG01	12.3	+						+	-	-	-	-	+		-	+				
UG01	13.6	+			-	-	+	+	-	-			+		-					
RG02	20.6	+			-			+	-	-		-	+		-	+	-			
UG02	18.6		-	+		-	+	+	-		-	-	+		-	+	-			
RG04	45.0		-			-	+	+	-	-	-		+		-	+				
RG05	60.7		-	+				+	-	-	-		+		-			+		
RH02	38.9	+			-			+	-	-	-	+	+		-	+				
UH02	63.8	+	-	+	-			+	-	-	-		+		-	+				
RH03	84.6		-	+				+	-	-			+		-	+				
RH04	1.0	+		-				+	-	-	-		+	-			-			
UH04	61.8		-					+	-	-	-		+		-	+	-	+		
RH05	50.1							+	-	-	-		+		-	+				
RH07	2.2	+			-			+	-	-	-		+		-					
[illegible]	13.3		-					+	-				+		-	+				
[illegible]	39.0	+	-	+		+	-	+	-	-	-		+		-	+		+		
[illegible]	81.4		-					+	-	-	-		+		-	+				
UN02	75.0		-		+			+	-	-	-	+	+		-	+		+		
RN03	35.9	+			-	-	+	+	-	-		-	+		-	+				

AGE SEVENTEEN   VARIABLES AND THEIR RELATIONSHIPS   OVERLAP EXERCISES FOR THIRTEEN AND SEVENTEEN

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RP01	73.9		-					+	-	-	-		+		-	+				
UP01	76.3		-	+				+	-	-	-		+		-	+				
RP02	28.1							+	-	-	-	-	+	-	-	+				
UP02	60.3	+	-					+	-	-	-		+		-	+				
RP03	75.4		-					+	-	-	-		+		-	+				
RP06	62.2		-					+	-	-	-		+		-	+	-			
RG01	42.8					+	-	+	-	-	-		+		-	+				
UG01	51.3	+						+	-	-	-	-	+		-	+				
RG02	51.3	+	-					+	-	-	-		+	-	-	+				
UG02	43.4		-					+	-	-	-	-	+		-	+	-			
RG04	75.2	+	-					+	-	-	-		+		-	+		+		
RG05	69.2					+	-	+	-		-		+		-	+				
RH02	75.4							+	-	-	-		+		-	+	-			
UH02	76.8	+	-	+		+	-	+	-	-	-		+		-	+				
RH03	93.9			+				+	-	-	-		+		-			+	+	+
RH04	23.5		-	+	-	+	-	+	-	-	-	-	+	-	-	+				
UH04	81.2					+	-	+	-	-	-		+		-	+	-	+		
RH05	70.0	+			-			+	-	-	-		+		-					
RH07	24.0				-			+	-	-	-	-	+	-	-	+				
RH08	46.4	+	-			+	-	+	-	-	-	-	+			+				
RH09	64.0	+	-			+	-	+	-	-	-		+		-	+			+	
UN01	83.9	+	-					+	-	-	-		+		-	+				
UN02	78.8							+	-	-	-		+		-	+				
RN03	64.8		-					+	-	-	-	-	+		-	+				

AGE SEVENTEEN VARIABLES AND THEIR RELATIONSHIPS OVERLAP EXERCISES FOR SEVENTEEN AND ADULT

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RP03	75.4		-					+	-	-	-		+		-	+				
RP04	50.3		-			+	-	+	-	-	-		+		-					+
UP04	47.9	+				+	-	+	-	-	-		+	-	-	+				
RP06	62.2		-					+	-	-	-		+		-	+	-			
UP06A	17.4	+				+	-	+	-	-	-	-	+	-	-	+				
UP06B	8.1	+				+	-	+	-	-	-		+	-	-	+			+	
RG01	42.8					+	-	+	-	-	-		+		-	+				
UG01	51.3	+						+	-	-	-	-	+		-	+				
RG04	75.2	+	-					+	-	-	-		+		-	+		+		
RG05	69.2					+	-	+	-		-		+		-	+				
UH02	76.8	+	-	+		+	-	+	-	-	-		+		-	+				
RH03	93.9			+				+	-	-	-		+		-			+	+	+
UH03	35.5	+						+	-	-	-		+	-	-	+				
UH04	81.2					+	-	+	-	-	-		+		-	+	-	+		
RH05	70.0	+			-			+	-	-	-		+		-					
UH08	13.4																			-
RH09	64.0	+	-			+	-	+	-	-	-		+		-	+			+	
RN01	50.5		-					+	-	-	-		+		-	+				
UN01	83.9	+	-					+	-	-	-		+		-	+				
UN02	78.8							+	-	-	-		+		-	+				
RN03	64.8		-					+	-	-	-	-	+		-	+				

AGE YOUNG ADULTS VARIABLES AND THEIR RELATIONSHIPS OVERLAP EXERCISES FOR SEVENTEEN AND ADULT

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RP03	60.4					+	-	+	-	-	-		+		-	+				
RP04	34.9					+	-	+	-	-	-		+	-	-	+				
UP04	36.3					+	-	+	-	-	-	+	+	-	-	+				
RP06	49.0					+	-	+	-	-	-		+	-	-	+			+	
UP06A	18.3					+	-	+	-	-	-		+		-	+				
UP06B	12.0					+	-	+	-	-	-		+		-					
RG01	33.4		-		+	+	-	+	-	-	-		+		-	+				
UG01	26.8	+		-		+	-	+	-	-			+	-	-	+				
RG04	48.1		-			+	-	+	-	-	-	+	+	-	-	+				-
RG05	68.2					+	-	+	-	-			+		-					
UH02	55.9					+	-	+	-	-	-		+	-	-	+				
RH03	80.7					+	-	+	-	-	-	+	+		-	+	+			
UH03	24.7					+	-	+	-	-	-		+	-	-	+				-
UH04	64.0					+	-	+	-	-	-	+	+		-	+				
RH05	55.9					+	-	+	-	-	-		+		-	+				
UH08	10.1							-	+				-							
RH09	55.3					+	-	+	-	-	-	+	+		-	+				+
RN01	55.7	+		-				+	-	-			+			+			-	
UN01	74.8				+			+	-	-			+		-	+	+			
UN02	63.4							+	-	-			+		-	+				
RN03	42.8		-			+	-	+	-	-	-	+	+	-	-	+				

AGE NINE PROBABILITY AND STATISTICS OVERLAP EXERCISES FOR NINES AND THIRTEENS

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UP	MC	SP
UJ03L	0.0																			
UJ03H	41.3								-						-					
UJ03O	23.2							+	-				+		-		-			
UJ03P	0.6	+	-					+	-	-	-		+	-				-		
UJ03S	5.7		-			+	-	+	-	-			+		-					

AGE THIRTEEN PROBABILITY AND STATISTICS OVERLAP EXERCISES FOR NINES AND THIRTEENS

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UP	MC	SP
UJ03L	0.2																			
UJ03H	55.3		-					+	-			-	+			+				
UJ03O	35.4		-			+	-	+	-	-	-		+		-					
UJ03P	5.9				-	+	-	+	-	-	-	-	+		-	+		-		
UJ03S	27.5		-			+	-	+	-	-	-		+			+	-			

AGE THIRTEEN PROBABILITY AND STATISTICS OVERLAP EXERCISES FOR THIRTEEN AND SEVENTEEN

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LR	HR	NBC	UP	HC	SP
RJ01	15.2					+	-	+	-		-	-	+	-	-	+		-		
RJ02	30.0		-			-	+	+	-		-		+		-	+	-		+	
UJ03L	0.2																			
UJ03H	55.3		-					+	-			-	+			+				
UJ03O	35.4		-			+	-	+	-	-	-		+		-					
UJ03P	5.9				-	+	-	+	-	-	-	-	+		-	+		-		
UJ03S	27.5		-			+	-	+	-	-	-		+			+	-			
UJ05	27.3	+			-	+	-	+	-	-	-		+		-	+	-			-
RJ06	38.4	+	-					+	-	-	-		+	-	-	+				
UJ07	12.5							+	-				+							

AGE SEVENTEEN PROBABILITY AND STATISTICS OVERLAP EXERCISES FOR THIRTEEN AND SEVENTEEN

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LR	HR	NBC	UP	HC	SP
RJ01	27.4	+				+	-	+	-		-		+		-					+
RJ02	47.3					-	+	+	-	-			+	-	-	+				
UJ03L	2.7	+	-			+	-	+	-	-	-			-	-					
UJ03H	63.0		-	+		+	-	+	-	-	-		+		-					
UJ03O	50.2		-	+		+	-	+	-	-	-		+		-				+	
UJ03P	18.4		-			+	-	+	-	-	-		+		-	+				
UJ03S	36.1		-			+	-	+	-	-	-		+		-	+	-			
UJ05	49.0		-					+	-	-	-		+	-	-	+				
RJ06	66.0	+	-					+	-	-	-		+		-	+				
UJ07	14.6							+	-	-	-		+		-					

AGE SEVENTEEN PROBABILITY AND STATISTICS OVERLAP EXERCISES FOR SEVENTEEN AND ADULT

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RJ01	27.4	◆				◆	–	◆	–		–		◆		–					◆
RJ02	47.3					–	◆	◆	–	–			◆	–	–	◆				
UJ02	18.7		–			◆	–	◆	–	–	–	–	◆	–	–	◆				
RJ04	31.1					◆	–	◆	–	–	–		◆		–	◆			◆	
UJ04	4.5	◆			–			◆	–				◆	–	–					
RJ05	30.8							◆	–	–	–	–	◆	–		◆				
UJ05	49.0		–					◆	–	–	–		◆	–	–	◆				
RJ06	66.0	◆	–					◆	–	–	–		◆		–	◆				
UJ06	2.7					◆	–				–		◆	–		◆				
UJ07	14.6							◆	–	–	–		◆		–					
UJ08	69.0							◆	–	–			◆	–						
UJ09	19.0		–					◆	–	–	–		◆		–	◆				

AGE YOUNG ADULTS PROBABILITY AND STATISTICS OVERLAP EXERCISES FOR SEVENTEEN AND ADULT

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RJ01	35.6		–			◆	–	◆	–	–			◆		–	◆				
RJ02	23.1					◆	–	◆	–	–	–		◆	–	–	◆				
UJ02	17.3		–			◆	–	◆	–	–	–		◆	–	–	◆				
RJ04	38.9					◆	–	◆	–	–	–		◆		–	◆				
UJ04	4.6					◆	–	◆	–	–	–		◆		–					
RJ05	28.5							◆	–		–		◆	–		◆				
UJ05	52.8					◆	–	◆	–	–			◆		–	◆				
RJ06	68.9					◆	–	◆	–	–	–	◆	◆		–	◆				
UJ06	4.6					◆	–	◆	–	–	–		◆		–	◆				–
UJ07	17.9					◆	–	◆	–	–	–		◆	–	–	◆				
UJ08	66.5							◆	–	–			◆		–	◆				–
UJ09	37.9					◆	–	◆	–	–			◆		–	◆		◆		

AGE NINE GEOMETRIC FACTS AND RELATIONSHIPS OVERLAP EXERCISES FOR NINES AND THIRTEENS

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	WHS	SHS	GHS	PHS	ER	LM	HM	HBC	UP	HC	SP
UK02	0.2					+		+												
UK03	3.9		-					+	-	-			+							
RK06	28.2		-		+	+	-	+	-				+		-	+				
UK06A	48.8		-					+	-	-			+	-		+				
UK06B	20.9		-			+	-	+	-		-		+	-	-	+				
UK06C	28.7	+	-			+	-	+	-		-		+		-	+				
UK07	6.2							+	-						-					
UK08	25.0		-	+		+	-	+	-	-	-		+			+		+	-	
UK11	3.2		-					+	-	-	-		+	-					-	
RK12	4.6					+	-		-				+			+				-
UK12C1	40.8										-		+			+				
UK12C5	39.2												+							
UK12C6	32.0															+				
UK12C7	42.6					+	-						+							
UK12C9	37.3		-										+	-		+				
UK12I	96.4		-					+	-		-		+					+		
UK12J	3.8							+	-	-	-	-	+		-	+	-			
UK12K	87.5			+				+	-				+							
UK12L	2.2		-		-	+	-		-	-		-	+		-	+				-
UK12M	27.7		-	+		+	-	+	-	-	-		+		-	+				-
UK12N	1.5																-			-
UK12O	2.8		-			+	-		-	-		-	+			+			-	
UK15	39.9	+	-			+	-	+	-	-	-		+	-	-	+		+		
RK16	36.2					+	-	+	-				+							
UK16	23.1			+				+	-	-		-	+		-	+				
RK19	10.4	+	-					+	-	-	-		+		-	+				
RK20	48.3					+	-	+	-	-			+		-			+		

AGE THIRTEEN GEOMETRIC FACTS AND RELATIONSHIPS OVERLAP EXERCISES FOR NINES AND THIRTEENS

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	WHS	SHS	GHS	PHS	ER	LM	HM	HBC	UP	HC	SP
UK02	19.3		-					+	-	-	-		+		-			+		
UK03	54.8	+	-		-			+	-	-	-		+		-	+				
RK06	68.0		-	+		+	-	+	-	-			+		-	+				
UK06A	81.7		-					+	-	-	-		+		-	+				-
UK06B	65.6		-	+				+	-	-	-		+		-	+				
UK06C	69.4	+	-	+				+	-	-	-		+		-	+				
UK07	20.7		-			+	-	+	-		-		+		-	+	-			
UK08	46.8		-		+	+	-	+	-	-	-		+	-	-					
UK11	27.5		-			+	-	+	-	-	-	-	+			+				
RK12	36.0	+			-	+	-	+	-		-		+		-	+				
UK12C1	58.3							+	-	-			+		-	+				
UK12C5	59.8			+	-			+	-	-	-		+		-	+				
UK12C6	47.5	+	-					+	-	-	-		+		-	+				
UK12C7	66.5					+	-	+	-	-			+		-	+				
UK12C9	56.8		-					+	-	-	-	+	+	-	-	+				
UK12I	95.2					-	+	+	-				+							
UK12J	22.9	+	-	+	-			+	-	-	-		+	-	-	+				
UK12K	88.7			+				+	-					-		+				
UK12L	21.4		-	+		+	-	+	-	-	-		+		-	+				
UK12M	54.4	+	-	+				+	-	-	-		+		-	+				
UK12N	2.5							+	-	-			+		-					
UK12O	23.7	+	-		-			+	-	-	-		+	-	-	+				
UK15	74.4		-	+		+	-	+	-	-	-	+	+		-	+				
RK16	60.4		-			+	-	+	-	-	-		+		-	+				
UK16	59.0		-		+			+	-	-			+		-			+		
RK19	57.5	+	-	+				+	-	-	-	+	+		-	+		+		
RK20	82.9	+	-	+	-	+	-	+	-		-		+		-	+				

AGE THIRTEEN GEOMETRIC FACTS AND RELATIONSHIPS OVERLAP EXERCISES FOR THIRTEEN AND SEVENTEEN

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
UK01	32.9	+	-	+	-	+	-	+	-	-	-		+			+				-
RK04	43.0	+	-		-			+	-	-	-		+	-	-	+				
UK06A	81.7		-					+	-	-	-		+		-	+				-
UK06B	65.6		-	+				+	-	-	-		+		-	+				
UK06C	69.4	+	-	+				+	-	-	-		+		-	+				
RK07	28.6		-					+	-	-	-		+		-	+				
UK07	20.7		-			+	-	+	-		-		+		-	+	-			
MK08	15.2	+	-	+	-			+	-	-		-	+		-	+				-
UK08	46.8		-		+	+	-	+	-	-	-		+	-	-					
UK09	58.2	+	-			-	+	+	-	-	-		+	-	-	+		+		
UK10	51.3		-			+	-	+	-		-		+		-			+		+
UK12C1	58.3							+	-	-			+		-	+				
UK12C5	59.8			+	-			+	-	-	-		+		-	+				
UK12C6	47.5	+	-					+	-	-	-		+		-	+				
UK12C7	66.5					+	-	+	-	-			+		-	+				
UK12C9	56.8		-					+	-	-	-	+	+	-	-	+				
UK12I	95.2					-	+	+	-				+							
UK12J	22.9	+	-	+	-			+	-	-	-		+	-	-	+				
UK12K	88.7			+				+	-					-		+				
UK12L	21.4		-	+		+	-	+	-	-	-		+		-	+				
UK12M	54.4	+	-	+				+	-	-	-		+		-	+				
UK12N	2.5							+	-	-			+		-					
UK12O	23.7	+	-		-			+	-	-	-		+	-	-	+				
UK16	59.0		-		+			+	-	-			+		-			+		
RK19	57.5	+	-	+				+	-	-	-	+	+		-	+		+		
UK21A	32.8		-	+		+	-	+	-	-	-		+		-	+				
UK21B	36.3		-	+		+	-	+	-	-	-		+		-	+				
UK21C	31.4		-	+		+	-	+	-	-	-		+		-	+				
UK22	10.3		-	+				+	-	-	-		+		-			-		

AGE SEVENTEEN   GEOMETRIC FACTS AND RELATIONSHIPS   OVERLAP EXERCISES FOR THIRTEEN AND SEVENTEEN

RELEASE #	NATIONAL P	NE	SE	C	N	R	P	WHT	BLK	NHS	SHS	GHS	PHS	ER	LN	NN	NDC	UP	NC	SP
UK01	56.4		-			♦	-	♦	-	-	-		♦		-				♦	
RK04	72.8	♦	-			♦	-	♦	-	-	-		♦		-	♦				
UK06A	92.4	♦						♦	-	-	-	♦	♦		-	♦		♦		
UK06B	82.2					♦	-	♦	-	-	-		♦		-	♦				
UK06C	83.8	♦	-					♦	-	-	-		♦		-	♦				
RK07	49.5		-	♦		♦	-	♦	-	-			♦		-	♦			♦	
UK07	43.2		-			♦	-	♦	-	-	-		♦		-	♦				
RK08	51.5	♦	-		-			♦	-	-	-		♦		-	♦				
UK08	61.3		-		♦	♦	-	♦	-	-	-		♦		-	♦		♦		
UK09	84.1	♦						♦	-	-	-		♦		-	♦			♦	
UK10	74.4					♦	-	♦	-		-		♦		-				♦	
UK12C1	72.1	♦	-			♦	-	♦	-	-	-		♦		-	♦				
UK12C5	74.0	♦	-			♦	-	♦	-	-	-		♦	-	-	♦				
UK12C6	63.9	♦	-			♦	-	♦	-	-	-	-	♦		-	♦	-			
UK12C7	79.5		-			♦	-	♦	-	-	-		♦		-	♦				
UK12C9	70.3	♦	-			♦	-	♦	-	-	-		♦	-	-	♦				♦
UK12I	96.9			♦		-	♦	♦	-	-			♦							
UK12J	41.3		-	♦		♦	-	♦	-	-	-		♦	-	-	♦				♦
UK12K	92.2		-	♦				♦	-		-		♦			♦	-			
UK12L	45.9	♦	-			♦	-	♦	-	-	-		♦		-	♦				
UK12M	74.0	♦	-			♦	-	♦	-	-	-		♦	-	-	♦		♦		
UK12N	11.3		-			♦	-	♦	-			-	♦	-	-	♦	-			
UK12O	52.6	♦	-			♦	-	♦	-	-	-		♦	-	-	♦				
UK16	69.6		-			♦	-	♦	-		-		♦							
RK19	69.8	♦	-	♦		♦		♦	-	-	-		♦		-	♦	-			♦
UK21A	57.1		-	♦		♦	-	♦	-	-	-		♦		-	♦				
UK21B	60.1	♦	-	♦		♦	-	♦	-	-	-		♦	-	-	♦				
UK21C	51.8		-	♦		♦	-	♦	-	-	-		♦		-	♦				
UK22	37.3	♦	-			♦	-	♦	-	-	-		♦		-	♦				

AGE SEVENTEEN GEOMETRIC FACTS AND RELATIONSHIPS OVERLAP EXERCISES FOR SEVENTEEN AND ADULT

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
UK01	56.4		-			+	-	+	-	-	-		+		-				+	
UK06A	92.4	+						+	-	-	-	+	+		-	+		+		
UK06B	82.2					+	-	+	-	-	-		+		-	+				
UK06C	83.8	+	-					+	-	-	-		+		-	+				
RK07	49.5		-	+		+	-	+	-	-			+		-	+			+	
RK08	51.5	+	-		-			+	-	-	-		+		-	+				
UK08	61.3		-		+	+	-	+	-	-	-		+		-	+		+		
UK09	84.1	+						+	-	-	-		+		-	+			+	
UK12C1	72.1	+	-			+	-	+	-	-	-		+		-	+				
UK12C5	74.0	+	-			+	-	+	-	-	-		+	-	-	+				
UK12C6	63.9	+	-			+	-	+	-	-	-	-	+		-	+	-			
UK12C7	79.5		-			+	-	+	-	-	-		+		-	+				
UK12C9	70.3	+	-			+	-	+	-	-	-		+	-	-	+				+
UK12I	96.9			+		-	+	+	-	-			+							
UK12J	41.3		-	+		+	-	+	-	-	-		+	-	-	+				+
UK12K	92.2		-	+				+	-		-		+			+	-			
UK12L	45.9	+	-			+	-	+	-	-	-		+		-	+				
UK12M	74.0	+	-			+	-	+	-	-	-		+	-	-	+		+		
UK12N	11.3		-			+	-	+	-			-	+	-	-	+	-			
UK12O	52.6	+	-			+	-	+	-	-	-		+	-	-	+				
RK14	23.9		-			+	-	+	-	-	-		+		-	+			+	-
RK15	33.8		-			+	-	+	-	-	-		+		-	+				
UK16	69.6		-			+	-	+	-		-		+							
UK17	20.9	+	-			+	-	+	-	-	-	-	+	-	-	+	-			
RK18	17.6	+	-			+	-	+	-	-	-	-	+		-	+				
UK20	13.6		-			+	-	+	-				+		-					
UK21A	57.1		-	+		+	-	+	-	-	-		+		-	+				
UK21B	60.1	+	-	+		+	-	+	-	-	-		+	-	-	+				
UK21C	51.8		-	+		+	-	+	-	-	-		+		-	+				

AGE YOUNG ADULTS GEOMETRIC FACTS AND RELATIONSHIPS OVERLAP EXERCISES FOR SEVENTEEN AND ADULT

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
UK01	52.9					◆	-	◆	-	-	-		◆	-	-	◆				
UK06A	86.2		-	◆				◆	-	-	-	◆	◆		-	◆	◆			
UK06B	80.6		-	◆				◆	-	-	-	◆	◆		-	◆	-			
UK06C	73.3		-					◆	-	-	-	◆	◆		-	◆				
RK07	48.3		-			◆	-	◆	-	-			◆	-	-	◆				
RK08	30.1					◆	-	◆	-	-	-		◆		-	◆				
UK08	50.0					◆	-	◆	-	-	-	◆	◆		-					
UK09	73.8		-					◆	-	-	-	◆	◆		-	◆				
UK12C1	71.0		-		◆	◆	-	◆	-	-		◆	◆	-	-	◆		◆		
UK12C5	72.1		-			◆	-	◆	-	-		◆	◆	-	-	◆			◆	
UK12C6	63.0					◆	-	◆	-	-			◆	-	-	◆		◆	◆	
UK12C7	78.9				◆	◆	-	◆	-	-		◆	◆	-	-	◆		◆		
UK12C9	67.6					◆	-	◆	-	-		◆	◆	-	-	◆				
UK12I	9[illegible].2							◆	-	-		◆	◆		-	◆				
UK12J	52.3	◆	-			◆	-	◆	-	-	-	◆	◆	-	-	◆				
UK12K	89.1					◆	-	◆	-	-		◆	◆		-					
UK12L	40.9		-			◆	-	◆	-	-		◆	◆		-	◆				
UK12M	72.5		-			◆	-	◆	-	-		◆	◆		-					
UK12N	10.0					◆	-	◆	-	-	-		◆	-	-		◆			
UK12O	55.6	◆	-			◆	-	◆	-	-	-	◆	◆		-	◆				
RK14	18.5					◆	-	◆	-	-	-		◆	-	-	◆	-			
RK15	28.2					◆	-	◆	-	-			◆		-					
UK16	81.7	-				◆	-	◆	[illegible]	-			◆		-	◆				
UK17	19.4					◆	-	◆	-	-	-		◆	-	-	◆				
RK18	26.4					◆	-	◆	-	-	-		◆	-	-	◆				
UK20	20.7					◆	-	◆	-	-	-		◆		-					
UK21A	47.5		-			◆	-	◆	-	-	-	◆	◆		-	◆	-			
UK21B	47.5		-		◆	◆	-	◆	-	-	-	◆	◆		-	◆	-			
UK21C	44.4		-		◆	◆	-	◆	-	-	-		◆		-	◆				

AGE THIRTEEN CONSUMER MATHEMATICS OVERLAP EXERCISES FOR THIRTEEN AND SEVENTEEN

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RP01	48.7	+						+	-	-			+	-	-	+				
UP01A	49.5	+	-			-	+	+	-	-	-		+		-	+			+	
UP01B	53.8	+				-	+	+	-	-	-		+		-	+				
UP01C	7.0	+	-					+	-		-		+		-	+				
UP01D	49.9	+	-					+	-	-	-		+		-	+				
UP01E	48.8	+				-	+	+	-	-	-		+	-	-	+			+	
RP07	24.5		-	+				+	-											
UP09	7.6			+				+	-		-		+		-	+				-
UQ04	51.1	+	-	+		+	-	+	-	-	-		+		-	+				
UQ05	32.9		-					+	-	-			+		-	+				
RQ05A	44.8		-	+	-	+	-	+	-	-	-		+		-	+				
RQ05B	6.9	+						+	-	-	-		+		-	+				

AGE SEVENTEEN CONSUMER MATHEMATICS OVERLAP EXERCISES FOR THIRTEEN AND SEVENTEEN

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RP01	75.6					+	-	+	-	-	-		+		-	+				
UP01A	75.6	+						+	-		-		+	-	-					+
UP01B	79.0	+	-			-	+	+	-		-		+	-	-	+				+
UP01C	30.4		-			+	-	+	-	-	-		+	-	-	+				+
UP01D	75.9							+	-		-		+	-	-	+				+
UP01E	75.5						+	+	-		-		+	-	-	+				+
RP07	33.7					+	-	+	-	-	-		+	-	-	+				
UP09	36.1	+			-			+	-	-	-		+	-	-	+				+
UQ04	63.6					+	-	+	-	-	-		+		-	+				+
UQ05	53.5		-					+	-	-	-		+		-	+				
RQ05A	68.5	+	-			+	-	+	-	-	-		+		-	+		+		
RQ05B	20.6					+	-	+	-	-	-		+		-				+	

AGE SEVENTEEN CONSUMER MATHEMATICS OVERLAP EXERCISES FOR SEVENTEEN AND ADULT

RELEASE #	NATIONAL P	NE	SE	C	W	M	F	WHT	BLK	NHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RP01	75.6					+	-	+	-	-	-		+		-	+				
UP01A	75.6	+						+	-		-		+	-	-					+
UP01B	79.0	+	-			-	+	+	-		-		+	-	-	+				+
UP01C	30.4		-			+	-	+	-	-	-		+	-	-	+				+
UP01D	75.9							+	-		-		+	-	-	+				+
UP01E	75.5						+	+	-		-		+	-	-	+				+
RP02	55.8	+	-					+	-	-	-		+		-	+				
UP02	30.9		-					+	-	-	-		+							
RP03	40.3	+	-			+	-	+	-		-		+	-	-	+	-			
UP03B	1.1							+	-								-	-		
UP04	40.1			+				+	-	-					-					
UP04A	65.6		-	+		+	-	+	-	-	-		+		-	+				
UP04B	62.8		-	+				+	-	-	-		+		-	+				
UP04C	55.1		-			+	-	+	-	-	-		+		-	+				
UP04G	58.8		-	+		+	-	+	-	-	-		+		-	+				
UP04H	31.1		-	+		+	-	+	-	-	-		+		-	+				
RP05	36.6	+	-			+	-	+	-	-	-		+		-	+				
RP07	33.7					+	-	+	-	-	-		+	-	-	+				
UP07	13.9					+	-	+	-	-	-		+		-	+		-		
UP08	21.1					+		+	-	-	-	-	+	-	-		-			+
UP09	36.1	+			-			+	-	-	-		+	-	-	+				+
UP10	5.9					+	-	+	-		-	-	+			+		-		
UQ01	10.4					+	-	+	-		-		+		-	+	-			
RQ02	76.5	+	-			+		+	-	-	-		+	-	-	+		+		
UQ02A	78.8		-			+	-	+	-	-	-		+	-	-	+		+		
UQ02B	69.8	+	-					+	-	-			+	-	-					
UQ03	49.9		-			+	-	+	-	-	-		+		-	+				
RQ04	54.9		-			+	-	+	-	-	-	-	+		-	+			+	
UQ04	63.6					+	-	+	-	-	-		+		-	+				+
UQ05	53.5		-					+	-	-	-		+		-	+				
RQ05A	68.5	+	-			+	-	+	-	-	-		+		-	+		+		
RQ05B	20.6					+	-	+	-	-	-		+		-				+	
RQ06A	50.0		-	+		+	-	+	-	-	-		+		-	+		+		
RQ06B	69.8			+		+	-	+	-	-	-		+	-	-					+

AGE YOUNG ADULTS CONSUMER MATHEMATICS OVERLAP EXERCISES FOR SEVENTEEN AND ADULT

RELEASE #	NATIONAL P	WE	SE	C	W	M	F	WHT	BLK	WHS	SHS	GHS	PHS	ER	LM	HM	MBC	UF	MC	SP
RP01	86.4		-			+	-	+	-	-		+	+		-	+	+			
UP01A	81.2				+	-	+	+	-	-	-	+	+		-	+				
UP01B	82.0				+	-	+	+	-	-			+		-	+				
UP01C	59.9		-			+	-	+	-	-	-	+	+		-	+				
UP01D	79.5				+	-	+	+	-	-	-	+	+		-	+	-			
UP01E	78.3				+	-	+	+	-	-			+		-	+	-			
RP02	67.7					+	-	+	-	-			+		-	+				
UP02	48.0	-						+	-	-		+	+		-	+				
RP03	56.4					+	-	+	-	-	-	+	+		-	+				
UP03B	15.6	-						+	-	-			+		-					
UP04	45.3					+	-	+	-			+	+		-					
UP04A	75.5					+	-	+	-	-		+	+		-	+				
UP04B	66.4	+				+	-	+	-				+		-	+			-	
UP04C	59.3	+				+	-	+	-	-		+	+		-					+
UP04G	64.0					+	-	+	-	-			+		-	+				
UP04H	33.9					+	-	+	-	-			+		-	+				
RP05	57.3					+	-	+	-	-			+		-	+				
RP07	38.5					+	-	+	-	-			+		-					
UP07	34.6					+	-	+	-	-	-	+	+		-	+				
UP08	32.0					+	-	+	-	-	-		+		-	+				
UP09	66.1							+	-	-			+		-	+				
UP10	20.8		-			+	-	+	-	-	-		+		-	+				
UQ01	15.7	+				+	-	+	-	-				-						
RQ02	77.9		-			+	-	+	-	-		+	+		-	+				
UQ02A	76.1					+	-	+	-	-		+	+		-	+				
UQ02B	67.5		-			+	-	+	-	-			+		-	+				
UQ03	58.3					+	-	+	-	-			+		-	+				
RQ04	61.7	+				+	-	+	-	-		+	+	-	-	+				
UQ04	70.7		-		+	+	-	+	-	-			+		-	+				+
UQ05	49.0					+	-	+	-	-			+		-	+				
RQ05A	62.5		-			+	-	+	-	-	-	+	+		-	+				
RQ05B	25.2					+	-	+	-	-	-		+		-					
RQ06A	53.8		-			+	-	+	-	-		+	+		-	+				
RQ06B	70.3					+	-	+	-	-		+	+		-	+				

APPENDIX C

NUMBER OF RESPONSES BY GROUP FOR EACH PACKAGE AT EACH AGE

NUMBER OF RESPONSES BY GROUP FOR EACH PACKAGE AT AGE 9

Package	1	2	3	4	5	6	7	8	9	10
National	2666	2670	2628	2646	2670	2674	2684	2250	2283	2206
Region										
Northeast	670	660	630	651	648	661	671	550	579	546
Southeast	658	672	659	663	690	681	663	558	567	562
Central	680	667	651	676	660	687	683	570	579	544
West	658	671	688	656	672	645	667	572	558	554
Sex										
Male	1342	1302	1315	1293	1336	1361	1345	1128	1154	1072
Female	1324	1368	1313	1353	1334	1313	1339	1122	1129	1134
Color										
White	1995	1997	1974	2005	1988	2005	2018	1691	1723	1634
Black	455	477	470	460	475	470	458	401	404	400
Other	216	196	184	181	207	199	208	158	156	172
Parental Education										
No High School	145	149	135	158	144	155	135	121	109	113
Some High School	133	131	110	128	115	126	132	122	119	115
Graduated High School	559	594	554	571	539	592	541	598	585	507
Post High School	771	725	799	817	815	771	810	823	805	823
Unknown	1058	1071	1030	972	1057	1030	1066	586	665	648
Size and Type of Community (STOC)										
Low Metro	234	332	243	212	271	301	261	229	224	232
Extreme Rural	283	301	201	301	243	273	259	228	235	213
Small Places	831	870	976	918	897	843	902	739	765	716
Medium City	426	355	350	354	359	399	359	336	332	308
Main Big City	296	198	267	274	350	304	306	237	251	249
Urban Fringe	317	342	330	326	265	288	354	265	260	255
High Metro	279	272	261	261	285	266	243	216	216	233

NUMBER OF RESPONSES BY GROUP FOR EACH PACKAGE AT AGE 13

Package	1	2	3	4	5	6	7	8	9	10	11	12
National	2531	2648	2674	2621	2684	2512	2689	2575	2573	2269	2240	2218
Region												
Northeast	639	655	670	630	675	632	683	632	640	569	564	560
Southeast	646	677	691	686	674	628	688	659	657	571	564	556
Central	645	665	644	659	675	625	646	648	633	566	557	559
West	601	651	669	646	660	627	672	636	643	563	555	543
Sex												
Male	1296	1307	1288	1322	1333	1201	1315	1262	1320	1106	1105	1077
Female	1235	1341	1386	1299	1351	1311	1374	1313	1253	1163	1135	1141
Color												
White	1927	1998	2029	1961	2033	1917	2028	1935	1968	1690	1671	1675
Black	428	467	452	430	451	398	480	422	394	400	388	383
Other	176	183	193	230	200	[illegible]	181	218	211	179	181	160
Parental Education												
No High School	185	187	200	220	174	155	186	181	180	188	196	170
Some High School	219	235	231	257	262	216	240	220	209	233	215	242
Graduated High School	754	762	838	770	851	760	857	744	795	763	768	747
Post High School	966	1031	1020	940	1017	984	1001	993	990	840	833	830
Unknown	407	433	385	434	380	397	405	437	399	245	228	229
Size and Type of Community (STOC)												
Low Metro	192	260	301	297	309	257	266	258	224	216	224	226
Extreme Rural	256	273	229	326	280	226	275	242	270	224	227	212
Small Places	841	909	996	901	840	799	849	818	870	750	726	741
Medium City	337	340	314	360	390	376	411	415	338	312	314	298
Main Big City	331	305	280	225	264	232	285	287	288	269	240	241
Urban Fringe	304	319	269	319	348	287	336	336	308	272	281	270
High Metro	270	242	285	193	253	335	267	219	275	226	228	230

NUMBER OF RESPONSES BY GROUP FOR EACH PACKAGE AT AGE 17

Package	1	2	3	4	5	6	7	8	9	10	11	12	13	14
National	2651	2713	2756	2721	2751	2725	2672	2682	2638	2633	2643	2501	2498	2496
Region														
Northeast	630	651	676	686	671	646	638	660	653	635	637	614	625	617
Southeast	696	699	693	681	705	677	686	677	658	670	689	654	631	635
Central	668	684	700	684	683	707	668	670	672	662	675	620	622	608
West	657	679	687	670	692	695	680	675	655	666	642	613	620	636
Sex														
Male	1250	1225	1325	1338	1305	1332	1262	1283	1241	1235	1289	1209	1201	1201
Female	1401	1488	1431	1383	1446	1393	1410	1399	1397	1398	1354	1292	1297	1295
Color														
White	2089	2118	2186	2118	2127	2152	2085	2112	2067	2053	2108	1931	1938	1948
Black	400	437	397	435	437	370	434	423	409	428	406	428	407	402
Other	162	158	173	168	187	203	153	147	162	152	129	142	153	146
Parental Education														
No High School	238	247	261	246	270	284	260	228	253	227	214	219	219	229
Some High School	347	380	323	335	341	360	346	381	354	359	362	345	305	353
Graduated High School	784	824	851	849	825	845	809	812	763	799	817	784	798	763
Post High School	1117	1098	1155	1125	1133	1096	1094	1090	1154	1065	1062	1005	1043	1024
Unknown	165	164	166	166	182	140	163	171	114	183	188	148	133	127
Size and Type of Community (STOC)														
Low Metro	239	344	226	287	263	271	271	293	276	265	279	271	296	271
Extreme Rural	229	235	319	248	251	298	286	296	262	243	298	250	232	232
Small Places	1029	1033	960	923	1032	992	931	933	942	920	927	866	874	885
Medium City	349	350	387	425	424	359	393	418	359	384	331	354	354	361
Main Big City	242	189	213	243	202	214	246	197	226	187	198	206	204	200
Urban Fringe	276	348	364	329	311	334	317	243	294	356	363	296	296	306
High Metro	287	214	287	266	268	257	228	302	279	278	247	258	242	241

NUMBER OF RESPONSES BY GROUP FOR EACH PACKAGE FOR ADULTS

Package	1	2	3	4	5	6	7	8
National	1993	1987	1999	2005	2030	2036	2034	1926
Region								
Northeast	472	471	474	474	480	483	483	456
Southeast	509	508	506	510	508	506	509	479
Central	512	509	514	516	521	524	519	496
West	500	499	505	505	521	523	523	495
Sex								
Male	915	911	917	913	935	940	941	906
Female	1078	1076	1082	1092	1095	1096	1093	1020
Color								
White	1670	1664	1674	1686	1700	1709	1703	1623
Black	201	201	200	196	198	199	203	189
Other	122	122	125	123	132	128	128	114
Parental Education								
No High School	538	531	537	537	587	590	589	544
Some High School	332	330	329	333	318	321	321	303
Graduated High School	583	589	589	590	580	578	580	553
Post High School	474	472	478	480	486	488	485	471
Unknown	66	65	66	65	59	59	59	55
Size and Type of Community (STOC)								
Low Metro	196	194	199	200	200	203	202	192
Extreme Rural	202	194	196	201	198	196	197	181
Small Places	838	838	839	842	856	856	857	816
Medium City	229	229	229	232	235	234	232	223
Main Big City	140	141	142	138	139	140	141	131
Urban Fringe	198	198	201	201	198	199	199	186
High Metro	190	193	193	191	204	208	206	197

*U.S. Government Printing Office: 1976-679-268/433 Region 8